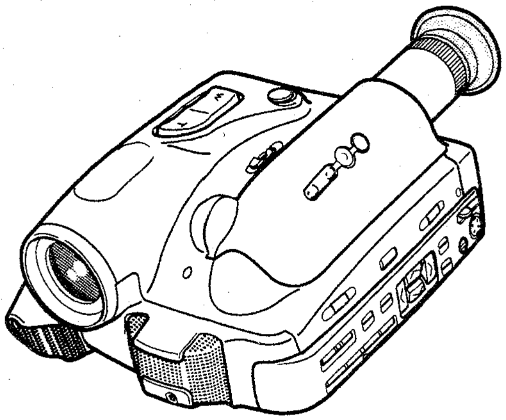
AKAI SERVICE MANUAL



Intelligent-HQ Hi8

VIDEO CAMERA RECORDER

MODEL PV-MS8/F

SPECIFICATIONS

PV-MS8/MS8F

Video recording system	Two rotary heads, helical scanning FM system
Audio recording system	Two rotary heads, helical scanning FM system
Rotary head	3 video (& audio) heads and 1 flying erase head
Video signal	PAL colour, CCIR standards
Usable cassette	8 mm video format cassette
Recording/playback time	
SP mode	90 min. with E5/P5-90 cassette
LP mode	180 min. with E5/P5-90 cassette
Tape speed	
SP mode	Approx. 20.051 mm/sec.
LP mode	Approx. 10.058 mm/sec.
Fast-forward/rewind time	approx. 6.5 min. with E5/P5-90 cassette
Video	
Line output	Phono jack, 1.0 Vp-p / 75 ohms, unbalanced
S-video Line output	4 pin, mini-DIN
Luminance signal	1.0 Vp-p / 75 ohms, unbalanced
Chrominance signal	0.55 Vp-p / 75 ohms, unbalanced
Audio	
Line output	Phono jack, −7.5 dBs/ 2.2 k ohms, unbalanced
Microphone input	Stereo mini jack, −68 dBs, high impedance, unbalanced with approx. 1.5 V DC output, impedance 6.8 k ohms
Earphone output	Stereo mini jack
Microphone	Electret condenser microphone, stereo type
Image sensor	1/3" CCD image sensor (420,000 pixels)
Lens	F/1.8, f= 6.0 - 48 mm 8 times power zoom lens
Filter diameter	37 mm
Viewfinder	Electronic viewfinder with 0.6" (15.2 mm) black/white CRT
Auto focus system	TTL
Shutter speed	1/50 to 1/10000 (8 steps)
Aperture control	Auto / manual (7 steps)
Colour temperature	Auto / 3200 °K / 4500 °K / 7200 °K)
Minimum illumination	3 lux (F1.8)
Recommended illumination	More than 100 lux
Power source	DC 6.0 V
Power consumption	6.5 W including the viewfinder (camera recording)
Operating temperature	0°C to +40°C
Operating humidity	35 % to 80 %
Dimensions	Approx. 133 (W) X 84 (H) X 168 (D) mm
Weight	690 g (w/o battery)

VA-300EA/EK/EG

Power requirement	AC 110 - 240 V, 50/60 Hz
Power consumption	24 W
Output	DC 8.0 V, 1.3 A (charge) DC 6.8 V, 1.8 A (Video camera)
Charging system	Constant current, Peak detection, timer controlled
Dimensions	69 (W) X 41 (H) X 150 (D) mm
Weight	380 g

Standard accessories

Operator's manual	1	
Rechargable battery (BP-N300)	1	
DC connection cord	1	
Shoulder strap (SB-101)	1	
Lithium battery (CR2032E)	1	
Lithium battery (CR2025E)	1	
Remote control unit	1	
RF convertor	1	(PV-MS8 (B),(E) and (S) only)
S cable (VW-S500)	1	(except PV-MS8F)
AV cable (VW-301)	1	(except PV-MS8F)
AV cable (VW-323)	1	(PV-MS8F only)
Carrying case (VG-C301)	1	(PV-MS8F only)
Cassette tape (P5-60TG)	1	(PV-MS8F only)

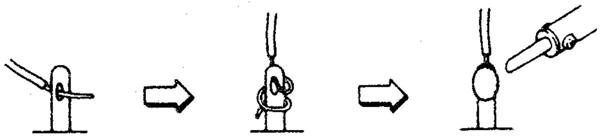
0 dBs= 0.775 V

∗ For improvement purposes, specifications and design are subject to change without notice.

★SAFETY INSTRUCTIONS

PRECAUTIONS DURING SERVICING

1. Parts indentified by the ⚠ (✻) symbol are critical for safety. Replace them only with the parts number specified.
2. In addition to safety, other parts and assemblies are specified for conformance with such regulations as those applying to spurious radiation. These must also be replaced only with the specified replacements.
   Examples: RF converters, tuner units, antenna selector switches, RF cables, noise blocking capacitors, noise blocking filters, etc.
3. Use specified internal wiring. Note especially:
   1) Wires covered with PVC tubing
   2) Double insulated wires
   3) High voltage leads
4. Use specified insulating materials for hazardous live parts.
   Note especially:
   1) Insulation Tape
   2) PVC tubing
   3) Spacers (insulating barriers)
   4) Insulation sheets for transistors
   5) Plastic screws for fixing micro switches
5. When replacing AC primary side components (transformers, power cords, noise blocking capacitors, etc.) wrap the ends of the wires securely around the terminals before soldering.



6. Make sure that wires do not contact heat producing parts (heatsinks, oxide metal film resistors, fusible resistors, etc.).
7. Check that replaced wires do not come in contact with sharp edged or pointed parts.
8. Also check areas surrounding repaired locations.
9. Make sure that foreign objects (screws, solder droplets, etc.) do not remain inside the set.

SAFETY CHECK AFTER SERVICING

After servicing, make measurements of the leakage current or resistance in order to determine that exposed parts are acceptably insulated from the supply circuit.
The leakage-current measurement should be done between accessible metal parts (such as chassis, ground terminal, microphone jacks, signal input/output connectors, etc.) and the earth ground through a resistor of 1500 ohms paralleled with a 0.15 µF capacitor, under the unit's normal working conditions. The leakage-current should be less than 0.5 mA rms AC.
The resistance measurement should be done between accessible exposed metal parts and power cord plug prongs with the power switch (if included) "ON". The resistance should be more than 2.2 Mohms.

MAKE YOUR CONTRIBUTION TO PROTECT THE ENVIRONMENT

Used batteries with the ISO symbol for recycling as well as small accumulators (rechargeable batteries), mini-batteries (cells) and starter batteries should not be thrown into the garbage can. Please leave them at an appropriate depot.

PRECAUTIONS FOR LITHIUM BATTERY

The lithium battery may explode if incorrectly replaced.
[OBSERVE THE FOLLOWING WHEN REPLACING]

- Replace with the same make and type (or equivalent) recommended by the manufacturer.
- Place the battery in the correct polarity.
- Do not short the terminals.
- Do not recharge the battery.
- Do not dispose of the battery in a fire.

Advarsel - Litiumbatteri

ADVARSEL!
Litiumbatteri-Eksplosionsfare ved fejlagtig handtering.
Udskiftning må kun ske med batteri
af samme fabrikat og type.
Levér det brugte batteri tilbage til leverandøren.

Advarsel - Litiumbatteri

ADVARSEL
Litiumbatteri-Eksplosjonsfare.
Ved utskifting benyttes kun batteri som
anbefalt av apparatfabrikanten.
Brukt batteri returneres apparatleverendøren.

Varning - Litiumbatteri

VARNING
Explosionsfara vid felaktigt batteribyte.
Använd samma batterityp eller en ekvivalent
typ som rekommenderas av apparattillverkaren.
Kassera använt batteri enligt fabrikantens instruktion.

Varoitus - Litium-paristo

VARNING
Paristo voi räjähtää jos se on virheellisesti asennettu.
Vaihda paristo ainoastaan laitevalmistajan suosittelemaan
tyyppiin. Hävitä käytetty paristo valmistajan ohjeiden
mukaisesti.

NOTE:
Do not disconnect or connect any connectors (especially when the FPC cable is connected) while the power is supplied to the unit even if the POWER SWITCH is turned OFF during servicing.
It may cause a short circuit and destroy the resistors or semiconductors.

SAFETY CHECK AFTER SERVICING (VA-300 ONLY)

Examine the area surrounding the repaired location for damage or deterioration. Observe that screws, parts and wires have been returned to original positions. Afterwards, perform the following tests and confirm the specified values in order to verify compliance with safety standards.

1. **Insulation resistance test**
   Confirm the specified insulation resistance or greater between power cord plug prongs and externally exposed parts of the set (RF terminals, antenna terminals, video and audio input and output terminals, microphone jacks, earphone jacks, etc.). See table 1 below.

2. **Dielectric strength test**
   Confirm specified dielectric strength or greater between power cord plug prongs and exposed accessible parts of the set (RF terminals, antenna terminals, video and audio input and output terminals, microphone jacks, earphone jacks, etc.) See table 1 below.

3. **Clearance distance**
   When replacing primary circuit components, confirm specified clearance distance (d), (d') between soldered terminals, and between terminals and surrounding metallic parts. See table 1 below.

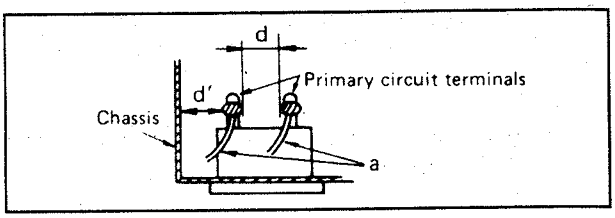


Table 1 : Ratings for selected areas

AC Line Voltage	Insulation Resistance	Dielectric Strength	Clearance Distance (d), (d')
100 to 240 V	≧1 M ohm/500 V DC	1.5 kV 1 minute	≧4 mm (d') (a : Power cord)

Note : This table is unofficial and for reference only. Be sure to confirm the precise values for your particular country and locality.

4. **Leakage current test**
   Confirm specified or lower leakage current between B (earth ground, power cord plug prongs) and externally exposed accessible parts (RF terminals, antenna terminals, video and audio input and output terminals, microphone jacks, earphone jacks, etc.).

   Measuring Method: (Power ON)
   Insert load Z between B (earth ground, power cord plug prongs) and exposed accessible parts. Use an AC voltmeter to measure across both terminals of load Z. See figure and following table 2.

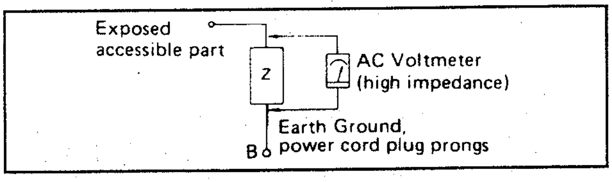

Exposed accessible part
Z
AC Voltmeter (high impedance)
Earth Ground, power cord plug prongs
B

Table 2 : Leakage current ratings for selected areas

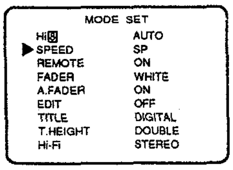
AC Line Voltage	Load Z	Leakage Current (i)	Earth Ground (B) to:
100 to 240V	50 k ohms	i ≦ 0.7 m A peak i ≦ 2 m A dc	Other terminals

Note : This table is unofficial and for reference only. Be sure to confirm the precise values for your particular country and locality.

★ INFORMATION

MODE SET menu

The MODE SET menu can be displayed in the viewfinder or on a monitor TV and used to adjust various VIDEO CAMERA modes. The following modes are displayed.



MODE SET

Hi8	AUTO
▶SPEED	SP
REMOTE	ON
FADER	WHITE
A.FADER	ON
EDIT	OFF
TITLE	DIGITAL
T.HEIGHT	DOUBLE
Hi-Fi	STEREO

- **Hi-8.......AUTO/OFF**

  To engage or cancel automatic selection of the recording mode.

  AUTO:
  The recording mode (Hi-8 or regular mode) will be selected automatically according to the type of tape loaded.
  OFF:
  The normal recording mode will be selected regardless of the tape loaded.

- **SPEED......SP/LP**

  Two recording speeds are available.

  SP (standard play):
  To record in the SP mode (approx. 20.051 mm/sec)
  LP (long play):
  To record in the LP mode (approx.10.058 mm/sec)

- **REMOTE.....ON/OFF**

  To engage or cancel the remote control function.

- **FADER......WHITE/BLACK**

  To set the VIDEO CAMERA for white or black fade in/out.

- **A. FADER....ON/OFF**

  To engage or cancel the auto fader function.

- **EDIT.......ON/OFF**

  To display or cancel displays on the TV monitor. This mode can be used to conveniently cancel displays you do not want to record during tape dubbing.

  OFF:
  All displays superimposed in the viewfinder will be displayed on the TV monitor.
  ON:
  Only date/time, title and MODE SET displays will be displayed on the TV monitor. All other displays will appear in the viewfinder only.

- **TITLE......DIGITAL/CHARACTER**

  To set the VIDEO CAMERA for digital generated title selection or character generated title selection.

- **T. HEIGHT...DOUBLE/NORMAL**

  To set the stored title height to normal or double size.

- **Hi-Fi......STEREO/LEFT/RIGHT/L+R**

  To select the channel you wish to monitor during stereo or bilingual pre-recorded tape playback.

  STEREO:
  Choose this setting when playing back a tape recorded in Hi-Fi stereo sound.
  LEFT:
  Choose this setting when you wish to monitor only the left channel of a Hi-Fi stereo tape or the main audio portion of a bilingual tape.
  RIGHT:
  Choose this setting when you wish to monitor only the right channel of a Hi-Fi stereo tape or the sub audio portion of a bilingual tape.
  L+R:
  Choose this setting when you wish to monitor a Hi-Fi stereo or bilingual tape in monaural (mixed left and right channel or mixed main and sub audio channel).

To set the modes you want:

1. Press the M-SET (MODE SET) button.
   The MODE SET menu will appear in the viewfinder.
2. Select the mode to be set with the cursor ∧ or ∨ button.
3. Set the mode setting with the cursor < or > button.
4. Repeat steps 2 and 3 to set another mode.
5. Press the SET (MEMO) button after all modes have been set.
   The MODE SET menu will disappear.

Note:

- The MODE SET menu can be cancelled at anytime during the above operation by pressing the M-SET button.
- Changing the "Hi-8" and "SPEED" setting is only possible during the "REC STBY" mode.

TEST MODE

Many kinds of test modes are prepared for the various adjustments on this video camera. In the test mode, a number of the numeral rows appear on the TV screen when the "DISPLAY" button is pressed twice and the data during the adjustment is displayed in hexadecimal numbers in the numeral rows.
Some special characters (marks) are given on respective adjustments and will be displayed on the TV screen during the test mode.

To engage the various test modes, press and hold the assigned buttons shown in the list simultaneously when the power is ON, keep holding the buttons for a few seconds until the test mode number and special character appear on the TV screen.

To cancel the test mode, firmly press the reset button down (the negative battery terminal on the rear) or disconnect the power supply from the unit (in this case, the lithium battery for back up must be removed first.).

To engage various test modes.

TEST MODE No.	BUTTONS PRESSED	PURPOSE	SYMBOL
TEST MODE 02	∧ & >	TAPE transport ADJ	OCTOPUS
TEST MODE 04	∨ & <	VIDEO circuit check	KANGAROO
TEST MODE 81	REC & DATE/TIME	CAMERA general ADJ.	SQUID
TEST MODE 82	COUNTER RESET & DATE/TIME	CAMERA lens ADJ.	OCTOPUS
TEST MODE 11	BACK LIGHT & WHITE BALANCE	VTR section final ADJ.	SQUID
TEST MODE 12	FULL AUTO & SHUTTER	CAMERA's function check	OCTOPUS

The function of TEST MODE 02

BUTTON	FUNCTION
–	The reel rotation sensor and the drum motor stop circuit do not operate in TEST MODE 02.
< or >	To change the ATF off-set bias during playback.
COUNTER RESET	To adjust the video switching point automatically.

The function of TEST MODE 04

BUTTON	FUNCTION
COUNTER RESET	To switch the Y/C separation IR adjusting mode ON/OFF.
<	To change the NOISE CANCEL level.
>	To change the Y comb filter level.

The function of TEST MODE 11

BUTTON	FUNCTION
REC	When playing back an SP pre-recorded tape, adjust the switching point automatically and the data will be memorized in the EEP ROM IC.
>	Set the ATF bias level to +1.
<	Set the ATF bias level to −1.
∧	Set the ATF bias level at maximum.
∨	Set the ATF bias level at minimum.
PLAY	Set the ATF bias level to the center.
SHUTTER	To memorize the present ATF bias level to the EEP ROM IC and set it as the center value.
I-HQ	To switch the I-HQ ON / OFF.
SET	To memorize the present I-HQ data to the EEP ROM IC.
WHITE BALANCE	To move the switching pulse to the PCM zone.
STILL	To change the tape speed during recording.
FADER	To select the normal or faded picture (white or black).
∧ & ∨	To set the IMS characters to English.
> & <	To set the IMS characters to French.

The function of TEST MODE 12

BUTTON	FUNCTION
SHUTTER	Shutter speed changes from 1/50 to 1/10000 and back to 1/50 automatically (in 8 steps).
WHITE BALANCE	White balance changes in one complete cycle automatically.
IRIS	IRIS changes in one complete cycle automatically.
TITLE	Colour of the IMS character changes in one complete cycle automatically.

IMPORTANT:

1. Auto focus tracking adjustment is absolutely necessary in the following conditions. Refer to step 5-3-2 on page 47.

1) The LENS BLOCK or ZOOM ENCODER PCB (on the LENS BLOCK) is replaced.
2) The CCD element or CAMERA (1) PCB is replaced.
3) The EEP-ROM IC (IC310), micro processing IC (IC309) or OPE-AMP IC (IC304 or 305) in the CAMERA (1) PCB is replaced.

2. I-HQ ENVE DET PRESET adjustment is necessary to maintain proper performance in the following conditions. Refer to step 5-4-3 on page 50.

1) EEP-ROM IC (IC310), micro processing IC (IC309) in the CAMERA (1) PCB is replaced or CAMERA (1) PCB is replaced.
2) HEAD DRUM BLOCK is replaced.
3) PRE AMP PCB is replaced.

3. If the HEAD DRUM BLOCK is replaced, the following adjustments are necessary to maintain proper performance. Make sure to demagnetize the rotary heads before proceeding.

1) PB switching point adjustment. (Electrical adj. 5-4-1)
2) ATF tracking adjustment. (Electrical adj. 5-4-2)
3) I-HQ ENVE DET PRESET adjustment. (Electrical adj. 5-4-3)
4) A/V head REC current adjustment. (Electrical adj. 5-2-1, step 6 & 5-2-2, step 5, 6)

I. DISASSEMBLY

In case of trouble, etc. necessitating dismantling, please dismantle in the order shown in the illustrations. Reassemble in the reverse order.

1-1. Removal of the UPPER CASE BLOCK

1. Remove the two Ⓐ screws which retain the right side of the UPPER CASE BLOCK.
2. Remove the Ⓑ screw and remove the LENS HOOD. (If there is no hole on the lens decoration plate, peel off the lens decoration plate then remove the Ⓑ screw.)

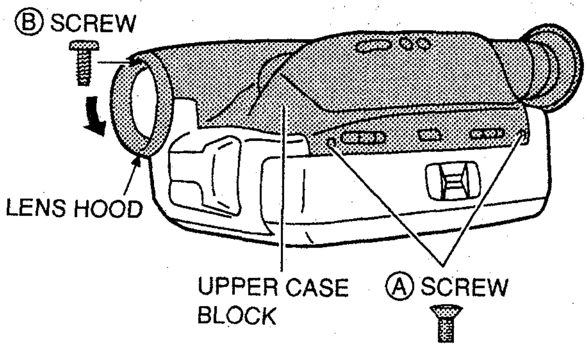

Ⓑ SCREW
LENS HOOD
UPPER CASE BLOCK
Ⓐ SCREW

Fig.1-1

3. Remove the three Ⓒ screws which retain the left side of the UPPER CASE BLOCK.

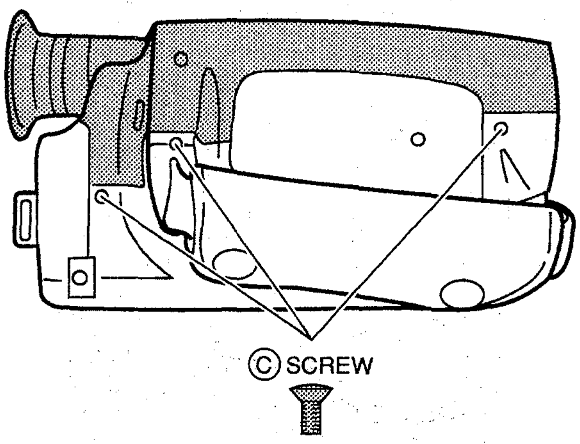


Fig.1-2

4. Remove the REMOTE CONTROL UNIT if it is mounted and remove the Ⓓ screw which retains the upper side of the UPPER CASE BLOCK.

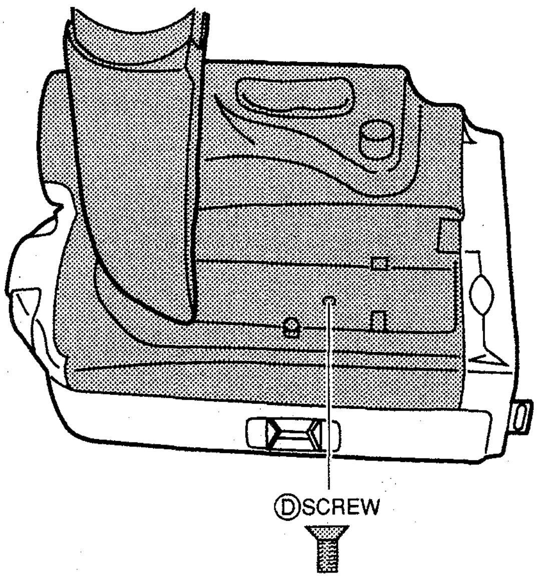


Fig.1-3

1-2. Removal of the BOTTOM CASE BLOCK

1. *Remove the three Ⓐ screws and remove the STAND HOLDER.*

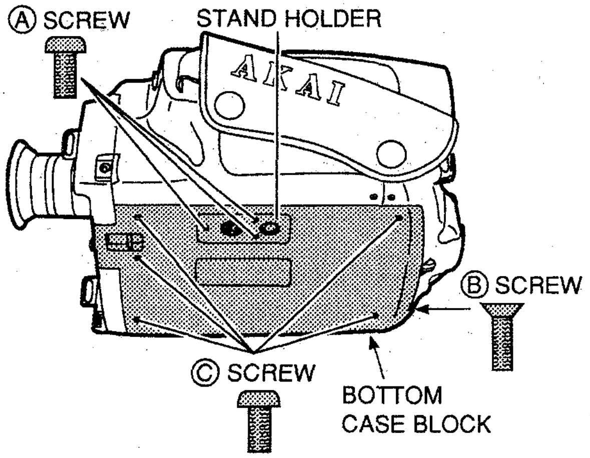

Ⓐ SCREW
STAND HOLDER
AKAI
Ⓑ SCREW
Ⓒ SCREW
BOTTOM CASE BLOCK

Fig.1-4

2. Remove the Ⓑ screw and five Ⓒ screws as shown in Fig.1-4 then remove the BOTTOM CASE BLOCK.

1-3. Removal of the BATTERY HOLDER CASE

1. Remove the four Ⓐ screws which retain the BATTERY HOLDER CASE and remove it.

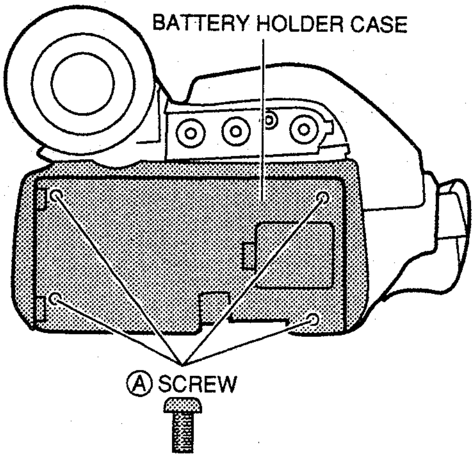

BATTERY HOLDER CASE
Ⓐ SCREW

Fig.1-5

1-4. Removal of the GRIP CASE BLOCK

1. Remove the Ⓐ screw and two Ⓑ screws then remove the GRIP CASE BLOCK.

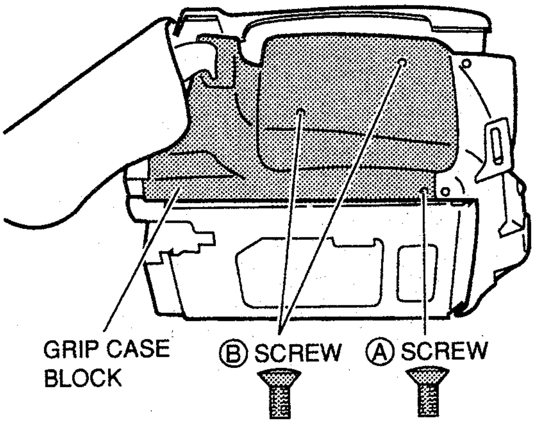

GRIP CASE BLOCK
Ⓑ SCREW
Ⓐ SCREW

Fig.1-6

1-5. Removal of the MIC BLOCK

1. If it is necessary to detach the UPPER CASE BLOCK completely, unlock the stoppers of the P17 and P711 connectors by pulling them in the direction of the arrow then disconnect both the FPC (Flexible Printed Circuit) cables. And then disconnect the P13 connector to detach the UPPER CASE BLOCK.

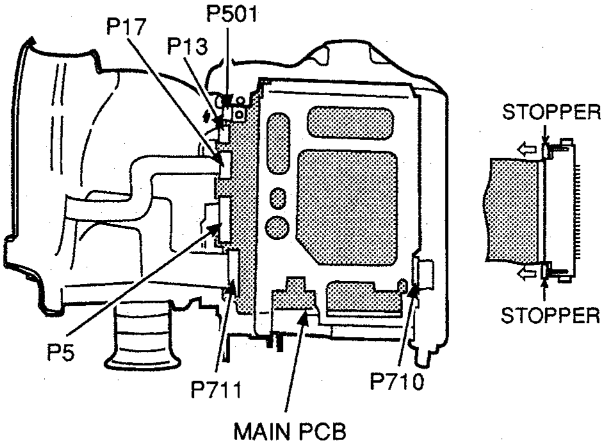

P17
P501
P13
STOPPER
STOPPER
P5
P711
P710
MAIN PCB

Fig.1-7

2. Disconnect the P501 connector as shown in Fig.1-7
3. Remove the Ⓐ and Ⓑ screws which retain the MIC BLOCK as shown in Fig.1-8.

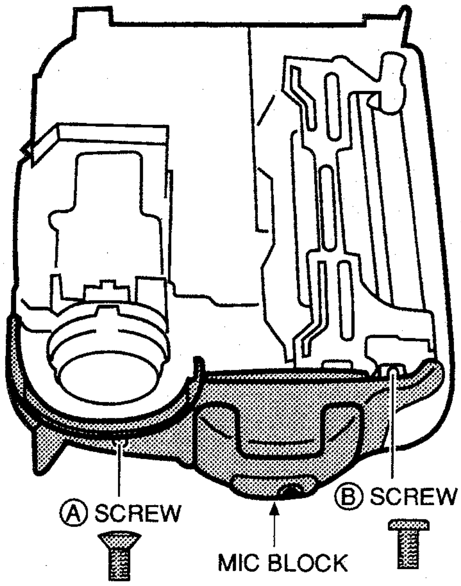

Ⓐ SCREW
Ⓑ SCREW
MIC BLOCK

Fig.1-8

1-6. Removal of the OPERATION A BLOCK

1. Unlock the stopper of the P710 connector as shown in Fig.1-7 and disconnect the FPC cable.
2. Disconnect the P301 connector on the S-SOCKET PCB.
3. Remove the Ⓐ and Ⓑ screws which retain the OPERATION A BLOCK and remove it.

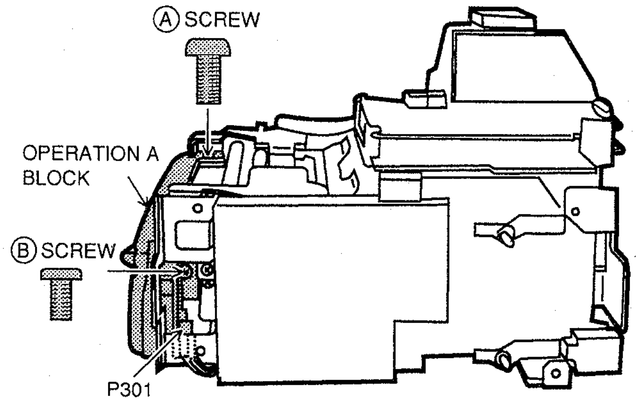

Ⓐ SCREW
OPERATION A BLOCK
Ⓑ SCREW
P301

Fig.1-9

1-7. Disassembling the UPPER CASE BLOCK

1-7-1. Removal of the VIEWFINDER BLOCK

1. Disconnect the P119 connector on the CONNECTOR PCB.

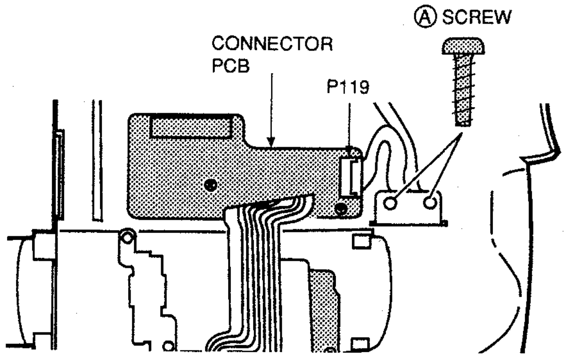
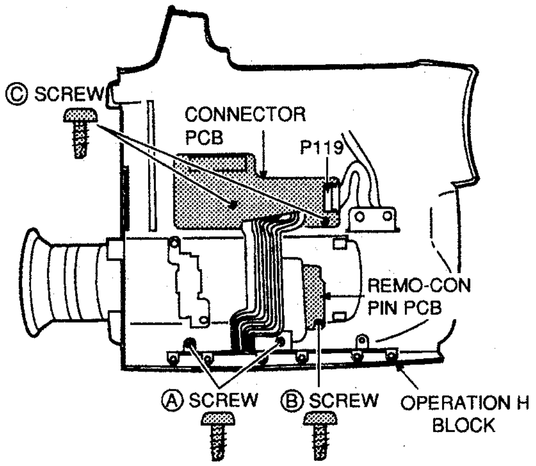

Ⓐ SCREW
CONNECTOR PCB
P119

Fig.1-10

2. Remove the two Ⓐ screws which retain the VIEWFINDER BLOCK.

1-7-2. Removal of the CONNECTOR PCB

1. Disconnect the P119 connector on the CONNECTOR PCB.
2. Remove the two Ⓐ screws on the OPERATION H BLOCK and Ⓑ screw on the REMO-CON PIN PCB as shown in Fig.1-11 .


Ⓒ SCREW
CONNECTOR PCB
P119
REMO-CON PIN PCB
Ⓐ SCREW
Ⓑ SCREW
OPERATION H BLOCK

Fg.1-11

3. Remove the two Ⓒ screws on the CONNECTOR PCB as shown in Fig.1-11.
4. Peel off the shield plate carefully then remove the three Ⓓ screws and Ⓔ screw on the OPERATION TW BLOCK as shown in Fig.1-12.

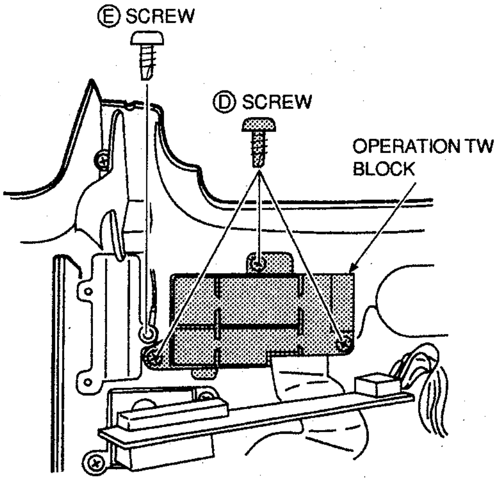

Ⓔ SCREW
Ⓓ SCREW
OPERATION TW BLOCK

Fig.1-12

5. Remove the CONNECTOR PCB (with the OPERATION H BLOCK, OPERATION TW BLOCK and REMO-CON PIN PCB attached) very carefully so as not to damage the FPC cables.

1-7-3. Removal of the AV JACK BLOCK

1. Remove the CONNECTOR PCB (refer to 1-7-2).
2. Remove the two Ⓐ screws and remove the REMOTE SENSOR BLOCK.

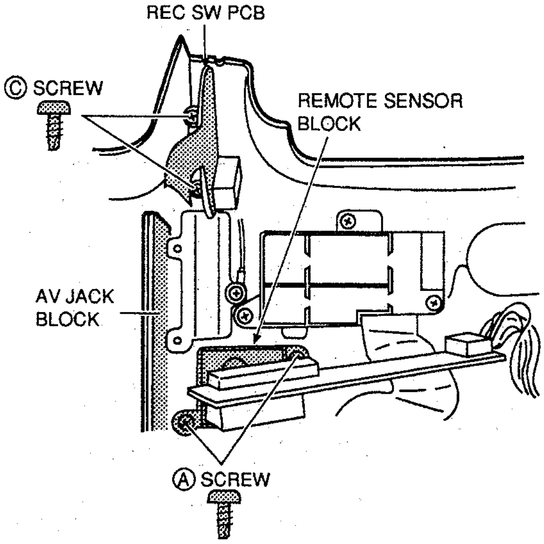

REC SW PCB
Ⓒ SCREW
REMOTE SENSOR BLOCK
AV JACK BLOCK
Ⓐ SCREW

Fig.1-13

3. Peel off the decoration plate on the AV OUT JACK then remove the two Ⓑ screws and remove the AV OUT JACK.

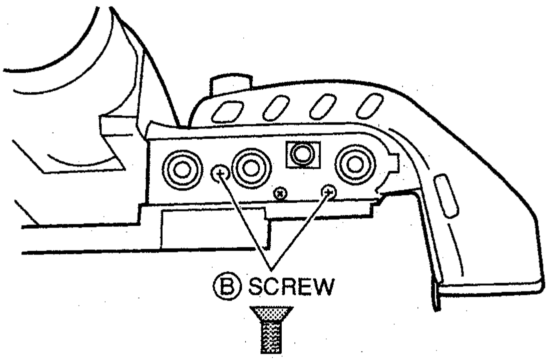


Fig.1-14

4. Remove the two Ⓒ screws which retain the REC SWITCH PCB as shown in Fig.1-13 then remove the AV JACK BLOCK carefully.

II. PRINCIPAL PARTS LOCATION

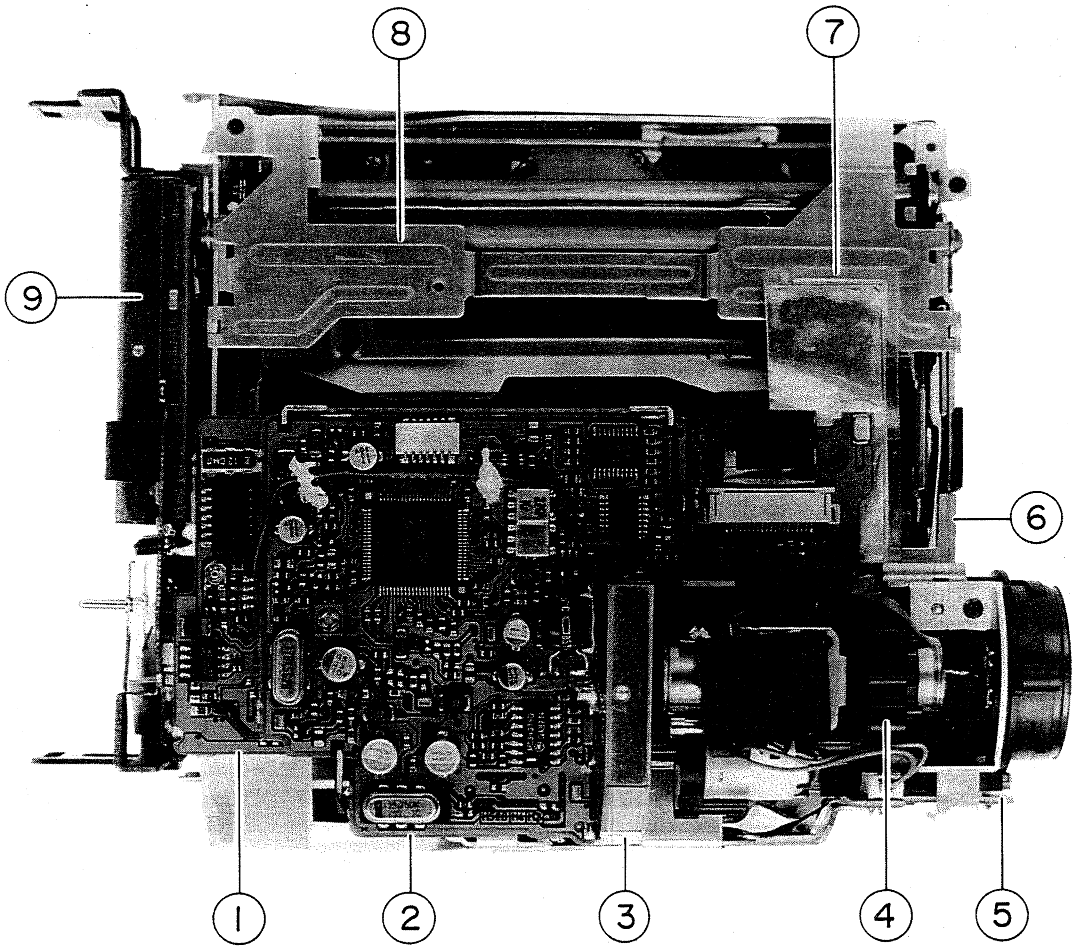


Fig. 2-1 Top view

1. CAMERA (1) PCB
2. CAMERA (2) PCB
3. CCD PCB
4. LENS BLOCK
5. ZOOM ENCODER PCB
6. LENS HOLDER (1) PART
7. INSULATION SHEET
8. LENS HOLDER (3) PART
9. POWER SUPPLY PCB

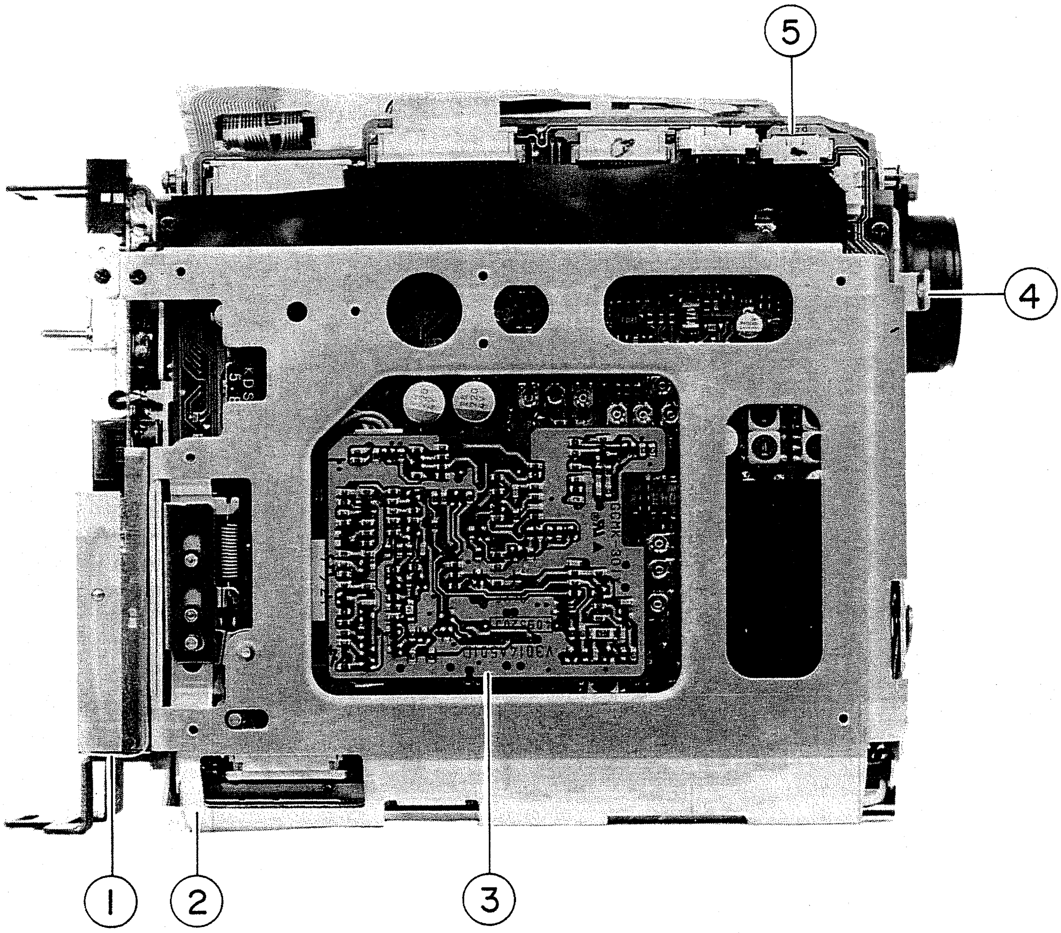


Fig. 2-2 Bottom view

1. POWER SUPPLY PCB
2. MECHA. COVER
3. Hi8 SUB PCB
4. LENS HOLDER (3) PART
5. MAIN PCB

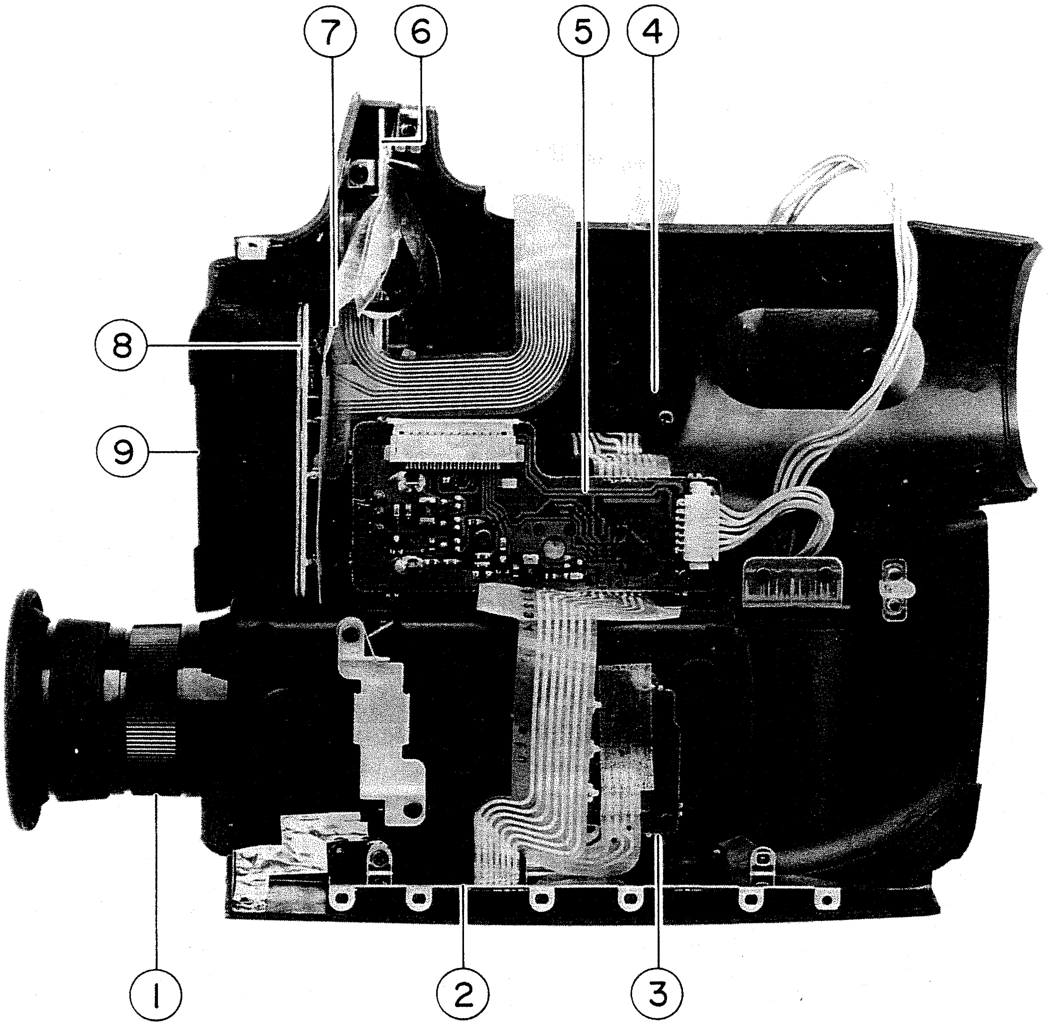


Fig. 2-3 UPPER CASE BLOCK

1. VIEWFINDER BLOCK
2. OPERATION H BLOCK
3. REMO-CON PIN PCB
4. OPERATION TW BLOCK
5. CONNECTOR PCB
6. A/V JACK BLOCK 1/2 (REC SWITCH & PHONE JACK)
7. INSULATION SHEET
8. A/V JACK BLOCK 2/2 (A/V OUT JACK)
9. A/V OUT JACK CAP

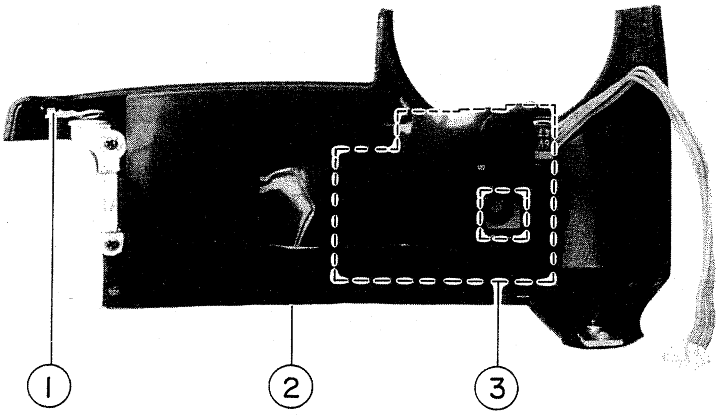


Fig. 2-4 MIC BLOCK

1. EARTH LUG
2. MIC PART
3. MIC AMP PCB

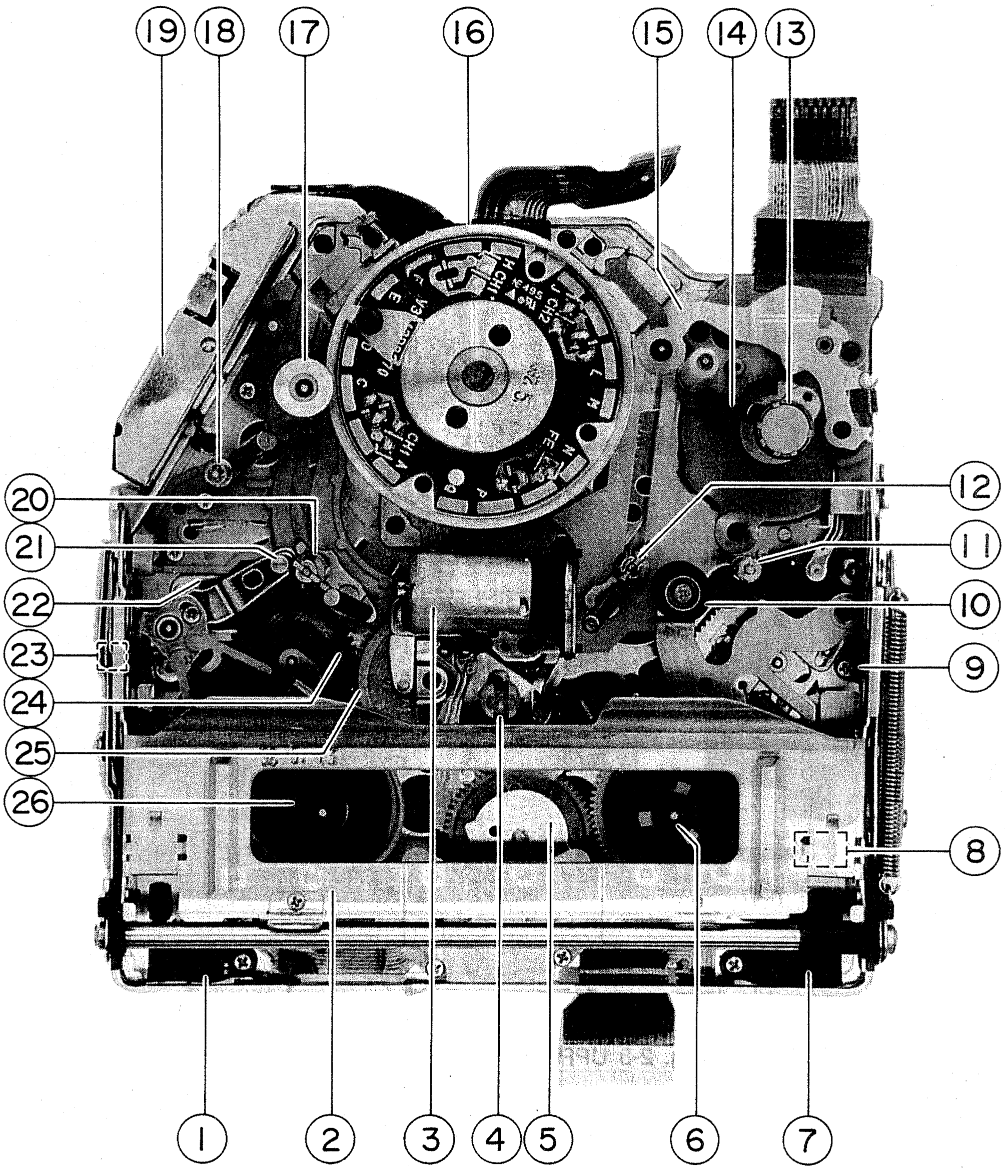


Fig. 2-5 MECHANISM BLOCK

1. TAPE DETECT SWITCH 1 (SW904)
2. EJECTOR BLOCK
3. LOADING MOTOR (M901)
4. SENSOR LED (D901)
5. IDLER PART
6. (T) REEL PART
7. TAPE DETECT SWITCH 2 (SW901)
8. EJECT SWITCH (SW902)
9. START SENSOR (TR901)
10. PINCH ROLLER BLOCK
11. REVIEW ARM
12. LOADING LEADER (T) PART
13. CAPSTAN MOTOR
14. TAPE GUIDE
15. HEAD CLEANER BLOCK
16. HEAD DRUM BLOCK
17. Z ROLLER PART
18. GUIDE (1)
19. PRE AMP PCB
20. LOADING LEADER (S) PART
21. TENSION LEVER PART
22. DEW SENSOR
23. END SENSOR (TR902)
24. MODE SELECT SWITCH
25. CENTER CAM GEAR
26. (S) REEL PART

III. MAIN COMPONENTS REPLACEMENT

Note: When disassembling the MECHA. BLOCK, the LOADING MECHANISM must firstly be set to the eject position. Press the EJECT button before disassembling the unit.

3-1. Removal of the POWER SUPPLY PCB

1. Remove the two Ⓐ screws which retain the POWER SUPPLY PCB as shown in Fig. 3-1.

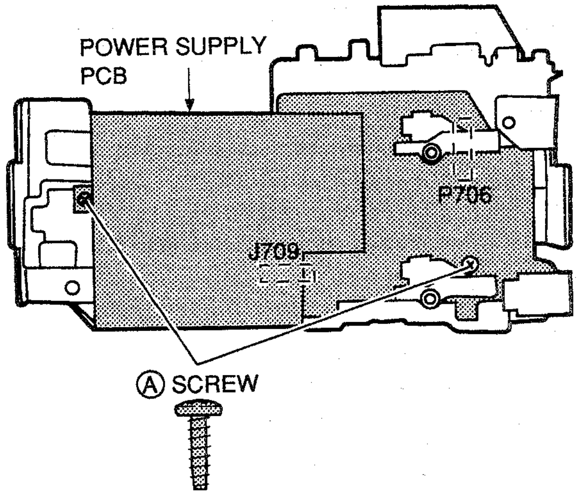


Fig. 3-1

2. While holding the CHASSIS and POWER SUPPLY PCB, squeeze the POWER SUPPLY PCB gently and pull it forwards to detach the J709 connector from the P309 connector on the MAIN PCB.
3. To remove the POWER SUPPLY PCB from the MECHANISM BLOCK, disconnect the P706 connector on the POWER SUPPLY PCB which comes from the CAMERA BLOCK.

3-2. Removal of the CAMERA BLOCK

3-2-1. Removal of the CAMERA BLOCK

1. Remove the POWER SUPPLY PCB (refer to step 3-1).
2. Unlock the stopper of the P5 connector on the MAIN PCB located on the bottom and disconnect the FPC cable as shown in Fig.1-7.
3. Remove the Ⓐ screw on the rear of the chassis.

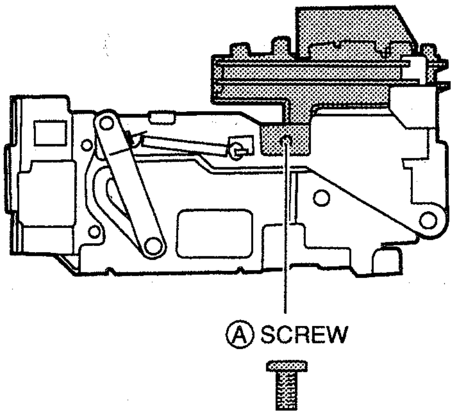


Fig. 3-2

4. Remove the Ⓑ screw on the LENS BLOCK left side and the Ⓒ screw on the front of the chassis then remove the CAMERA BLOCK.

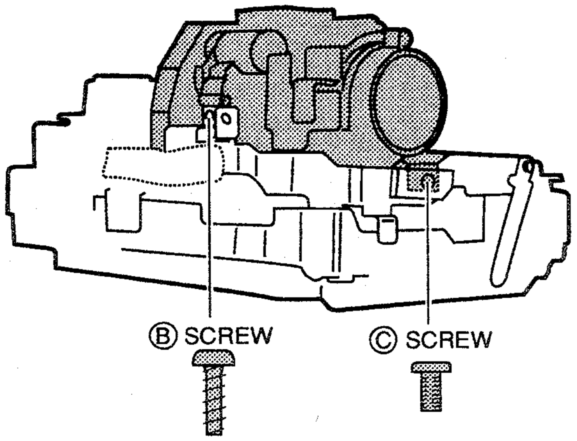


Fig. 3-3

3-2-2. Removal of the LENS BLOCK

1. Unlock the stopper of the P304 connector on the CAMERA (1) PCB and disconnect the LENS BLOCK's FPC cable.

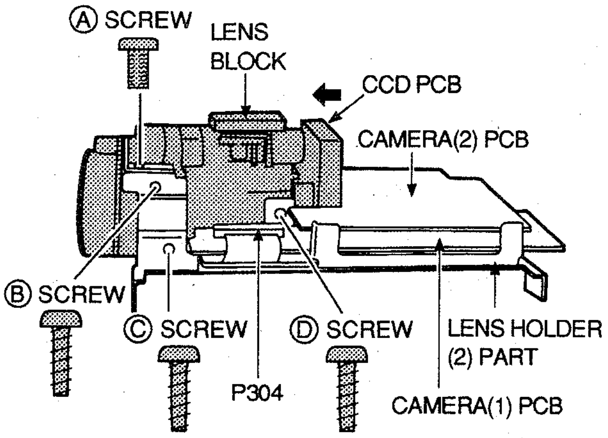


Fig. 3-4

2. Remove the solder where the CCD PCB shield cover and the CAMERA (2) PCB is connected.
3. Remove the LENS BLOCK retaining Ⓐ, Ⓑ, Ⓒ and Ⓓ screws as shown in Fig. 3-4 and while holding the CAMERA (2) PCB with your right hand, squeeze and pull the CCD PCB shield cover in the direction of the arrow very carefully with your left hand to detach the LENS BLOCK (with CCD PCB attached) from the CAMERA (2) PCB.
4. In case you are removing the CAMERA (1) PCB and CAMERA (2) PCB from the LENS HOLDER (2) part, take care not to scratch any of the chips mounted on the PCB by the chassis's PCB holders (grooves on the chassis).
5. Reassemble in the reverse order for installation.

3-2-3. Removal of the CCD PCB.

1. Remove the two Ⓐ CCD PCB retaining screws and detach the CCD PCB carefully.

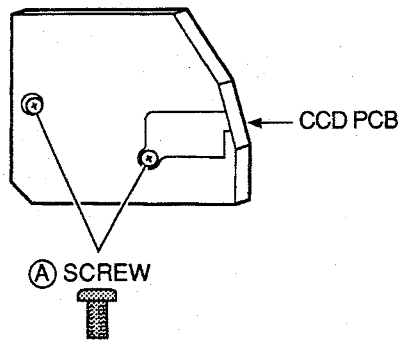


Fig. 3-5

2. When re-attaching the CCD PCB to the LENS BLOCK, take care not to damage or bend the CCD's leads.

3-2-4. Removal of the CCD

1. Remove the two Ⓐ screws which retain the CCD PLATE.

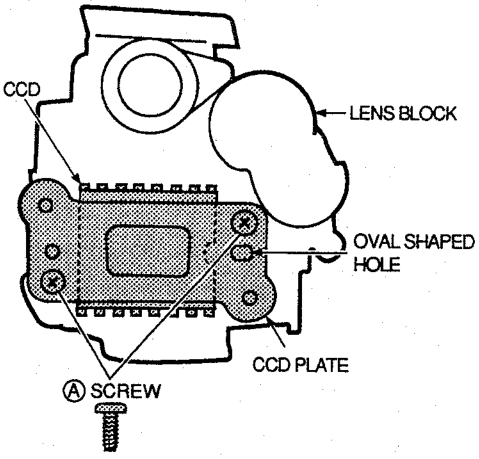


Fig. 3-6

2. If the X'TAL FILTER comes out of the LENS BLOCK or it has to be replaced for some reason, take care of the direction when installing it.

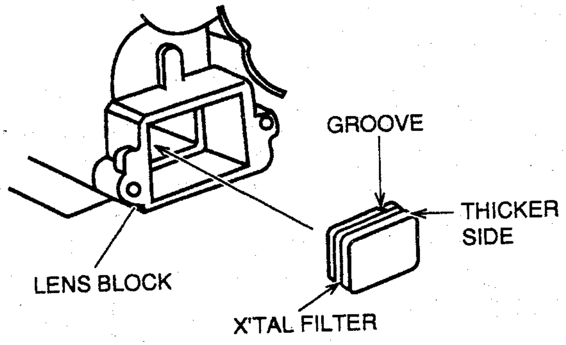


Fig. 3-7

3. When reassembling, very carefully clean the surface of the X'TAL FILTER (if it is removed from the LENS BLOCK) and CCD element (on the CCD PLATE) before installation. (We recommend using lens cleaning paper or a lens cleaning cloth). After confirmation that there is no dust, dirt or any finger prints on the surface of the CCD (and the X'TAL FILTER), attach the RUBBER SEAL on the CCD.
4. Place the CCD plate (with the rubber seal attached) on the LENS BLOCK, the oval shaped hole (CCD's groove side) on the CCD PLATE must be the right side as shown in Fig. 3-6. Then tighten the two retaining screws.

Note 1:

Do not try to detach the CCD from the CCD PLATE, as it is precisely mounted on the CCD PLATE, with glue, at the factory by using a special jig.
The CCD is always supplied mounted on the CCD PLATE.

Note 2:

Once the CCD plate is replaced or removed from the LENS BLOCK, auto focus tracking adjustment must be performed. Refer to the 5-3-2, "AUTO FOCUS TRACKING ADJUSTMENT" on page 47.

3-3. Removal of the MECHA. BLOCK

3-3-1. Removal of the MECHA. COVER PART

1. Remove the POWER SUPPLY PCB and CAMERA BLOCK (refer to 3-1 and 3-2).
2. Remove the Ⓐ, Ⓑ and three Ⓒ screws as shown in Fig. 3-8.

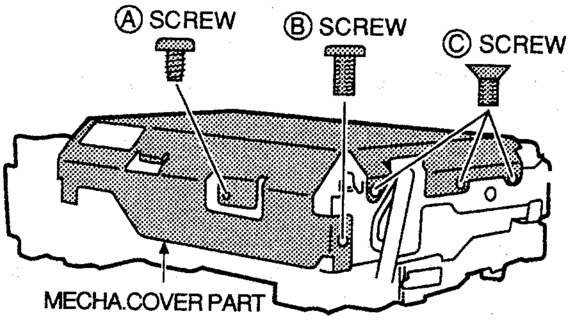


Fig. 3-8

3. Remove the three Ⓓ screws then remove the MECHA. COVER PART.

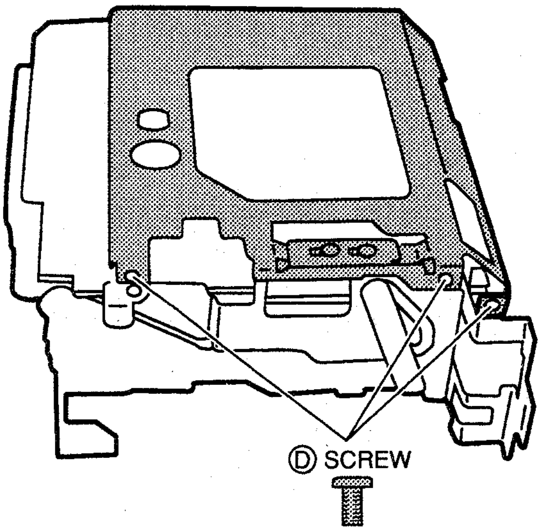


Fig. 3-9

3-3-2. Removal of the MAIN PCB

1. Remove the MECHA. COVER PART (refer to 3-3-1).
2. Unlock the stopper of the P312 connector and disconnect the MECHANISM SENSOR's FPC cable.

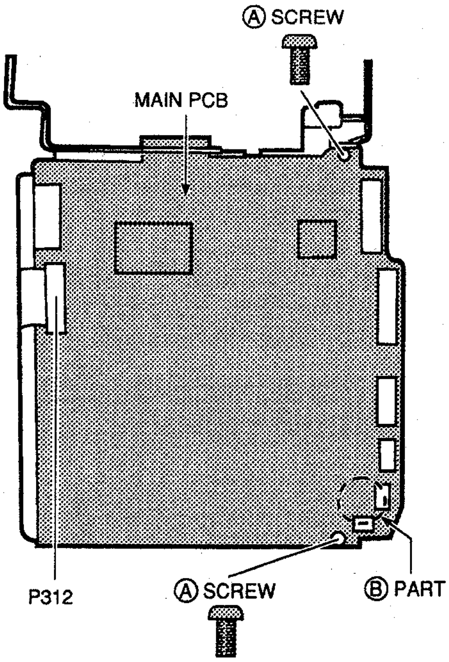

Ⓐ SCREW
MAIN PCB
P312
Ⓐ SCREW
Ⓑ PART

Fig. 3-10

3. Remove the two Ⓐ screws and lift up the Ⓑ part to disconnet the connector between the PRE AMP PCB and MAIN PCB as shown in Fig. 3-10.
4. Turn over the MAIN PCB taking care not damage to the other FPC cables.
   Unlock the stoppers of the P307 and P308 connectors then disconnect both the DRUM MOTOR and CAPSTAN MOTOR FPC cables.

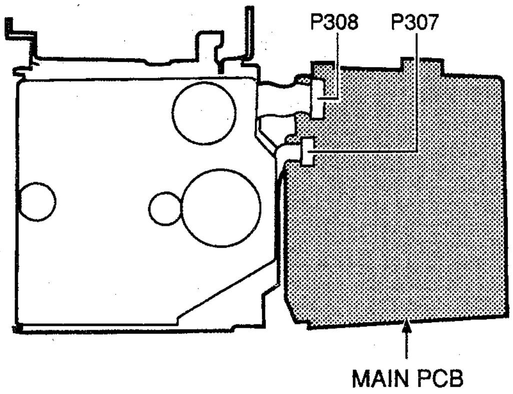

P308
P307
MAIN PCB

Fig. 3-11

3-3-3. Removal of the CAMERA HOLDER BLOCK

1. Remove the MAIN PCB (refer to 3-3-2).
2. Remove the two Ⓐ screws and remove the CAMERA HOLDER BLOCK (LENS HOLDER (1) PART and LENS HOLDER (3) PART).

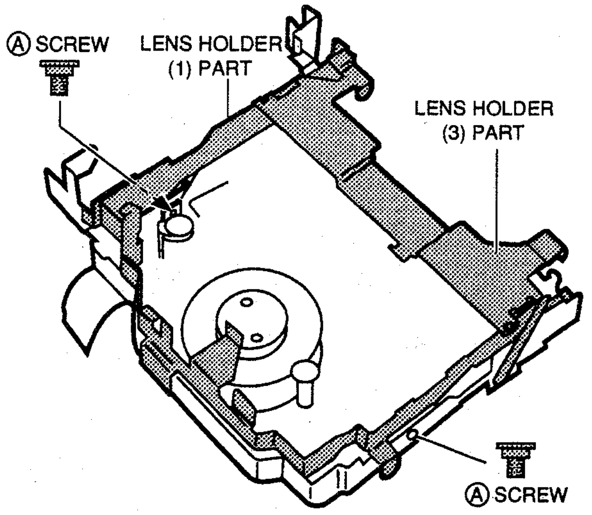

Ⓐ SCREW
LENS HOLDER (1) PART
LENS HOLDER (3) PART
Ⓐ SCREW

Fig. 3-12

3-3-4. Removal of the PRE AMP PCB

1. Unlock the stopper of the P916 connector on the PRE AMP PCB and disconnect the FPC cable which comes from the LOWER DRUM BLOCK.
2. Remove the Ⓐ screw and remove the PRE AMP PCB.

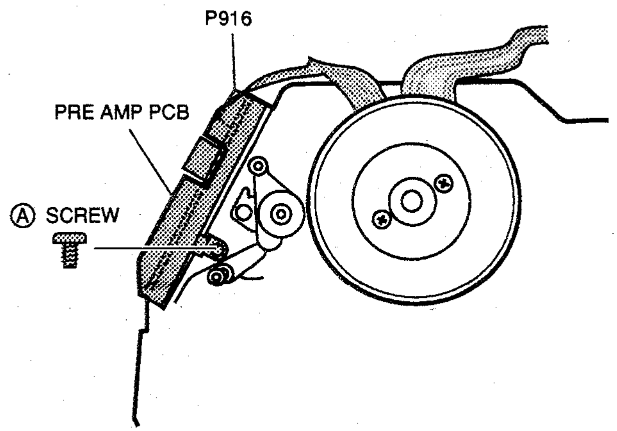


Fig. 3-13

3-4. Disassembling the MECHA. BLOCK

Note:

- It it necessary to remove the POWER SUPPLY PCB, CAMERA BLOCK, CAMERA HOLDER BLOCK, PRE AMP PCB and the MECHA. COVER PART in most cases before proceeding.
- Set the loading mechanism to the "reference position" supplying DC 4.5 V to the LOADING MOTOR before proceeding.

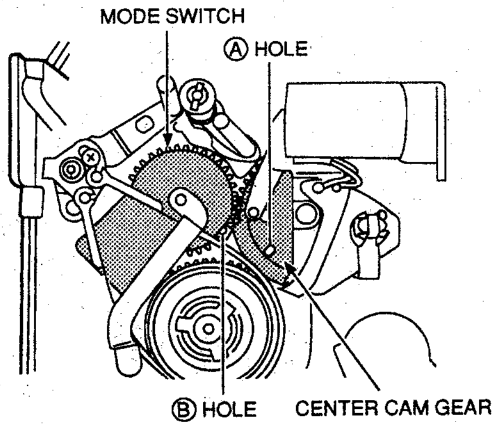


Fig. 3-14

At the reference position, the CENTER CAM GEAR's Ⓐ hole must be aligned with its reference hole on the chassis and the MODE SWITCH's Ⓑ hole must be aligned with its reference hole on the chassis and hole on the SLIDER PLATE.

3-4-1. Removal of the HEAD DRUM BLOCK

1. Remove the three Ⓐ screws as shown in Fig. 3-15.

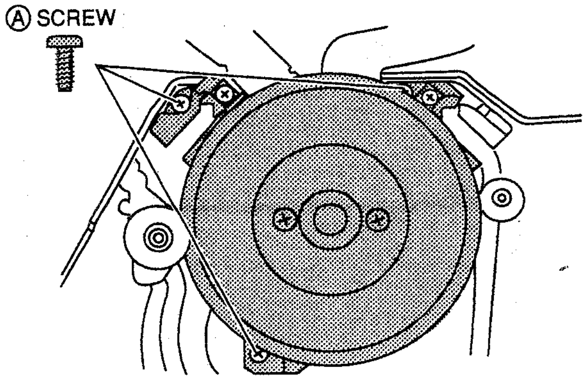


Fig. 3-15

2. When reattaching the HEAD DRUM BLOCK, taking care not to damage the FPC cables

Note:

1. When replacing the HEAD DRUM BLOCK, handle it with special care to avoid any scratching on the upper and lower head drums, or damaging the rotary head tips.
2. After replacement, the following adjustments are necessary for proper performance. And make sure to demagnetize the rotary heads before proceeding.

1) PB switching point adjustment. (Electrical adj. 5-4-1)
2) ATF tracking adjustment. (Electrical adj. 5-4-2)
3) I-HQ reference voltage memorization. (Electrical adj.5-4-3)
4) A/V head REC current adjustment. (Electrical adj. 5-2-1, step 6 & 5-2-2, step 5, 6)

3-4-2. Removal of the DRUM MOTOR PCB

1. Remove the HEAD DRUM BLOCK (refer to step 3-4-1).
2. Remove the Ⓐ screw and remove the EARTH BRUSH as shown in Fig. 3-16.

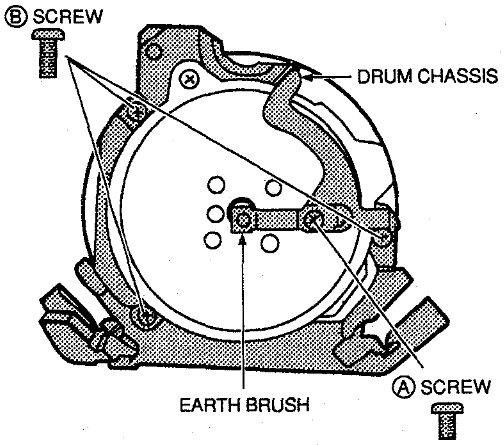

Ⓑ SCREW
DRUM CHASSIS
EARTH BRUSH
Ⓐ SCREW

Fig. 3-16

3. Remove the three Ⓑ screws and remove the DRUM CHASSIS carefully as shown in Fig. 3-16.
4. Remove the four Ⓒ screws on the MOTOR HOLDER as shown in Fig. 3-17.

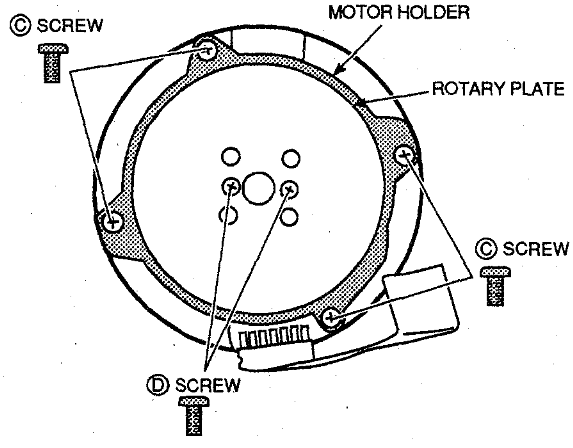

Ⓒ SCREW
MOTOR HOLDER
ROTARY PLATE
Ⓒ SCREW
Ⓓ SCREW

Fig. 3-17

5. Remove the two Ⓓ screws which retain the ROTARY PLATE and remove the ROTARY PLATE. As the power of the magnet on the ROTARY PLATE is very strong and the DRUM MOTOR PCB is sandwiched between the ROTARY PLATE and DRUM PLATE, take care not to damage the DRUM MOTOR PCB when removing the ROTARY PLATE. First removing the ROTARY PLATE with DRUM MOTOR PCB and DRUM PLATE attached from the COLLAR PRELOAD is recommended. Then hold the ROTARY PLATE and remove the DRUM PLATE very carefully.
6. Reassemble in the reverse order for installation. When reattaching the ROTARY PLATE, the Ⓐ hole on the COLLAR PRELOAD must be aligned with the Ⓑ hole on the ROTARY PLATE as shown in Fig. 3-18.

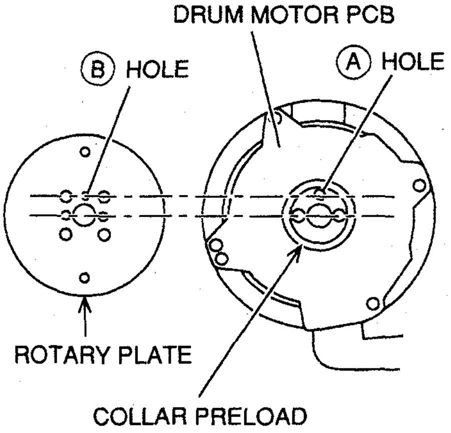

DRUM MOTOR PCB
Ⓑ HOLE
Ⓐ HOLE
ROTARY PLATE
COLLAR PRELOAD

Fig. 3-18

Note:

After replacement, the following adjustments are necessary for proper performance.

1) PB switching point adjustment. (Electrical adj. 5-4-1)
2) ATF tracking adjustment. (Electrical adj. 5-4-2)

3-4-3.Removal of the EJECTOR BLOCK

1. Remove the slit washer on the right side and the E RING on the left side of the MECHA. BLOCK as shown in Fig. 3-19.

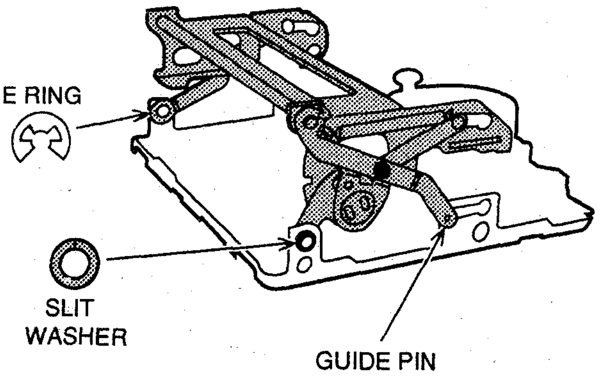

E RING
SLIT WASHER
GUIDE PIN

Fig. 3-19

2. Remove the two Ⓐ screws and remove the two CHASSIS PLATEs (L-2 & R-2) as shown in Fig. 3-20. (Removing the PRE AMP PCB retaining screw makes easy to remove the L-2 CHASSIS PLATE.)

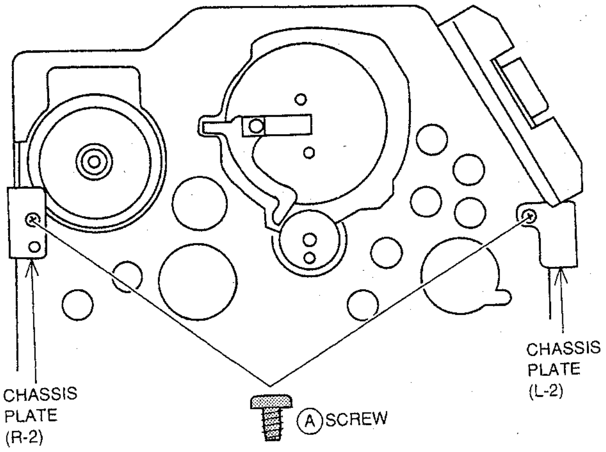

CHASSIS
PLATE
(L-2)
CHASSIS
PLATE
(R-2)
Ⓐ SCREW

Fig. 3-20

3. Extract the individual guide pins from the respective guide holes on the chassis taking care not to damage them.
4. Reassemble in the reverse order for installation.

3-4-4. Removal of the HEAD CLEANER BLOCK and TAPE GUIDE HOLDER

1. Remove the EJECTOR BLOCK (refer to 3-4-3).
2. Unhook the cleaner arm spring then release the stopper of the CLEANER ARM BLOCK as shown in Fig. 3-21 and remove it.

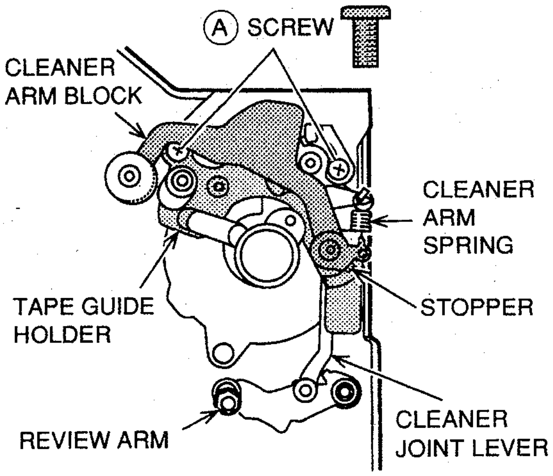

Ⓐ SCREW
CLEANER
ARM BLOCK
CLEANER
ARM
SPRING
TAPE GUIDE
HOLDER
STOPPER
REVIEW ARM
CLEANER
JOINT LEVER

Fig. 3-21

3. Remove the two Ⓐ screws then remove the TAPE GUIDE HOLDER PART.
4. After replacement, reassemble in the reverse order for installation. When reattaching the TAPE GUIDE HOLDER, insert the pin of the CLEANER JOINT LEVER into the hole on the REVIEW ARM.

3-4-5. Removal of the CAPSTAN MOTOR BLOCK

1. Remove the EJECTOR BLOCK (refer to 3-4-3).
2. Remove the TAPE GUIDE HOLDER BLOCK (refer to 3-4-4, 3).
3. Remove the Ⓐ screw and remove the CAPSTAN MOTOR as shown in Fig. 3-22.

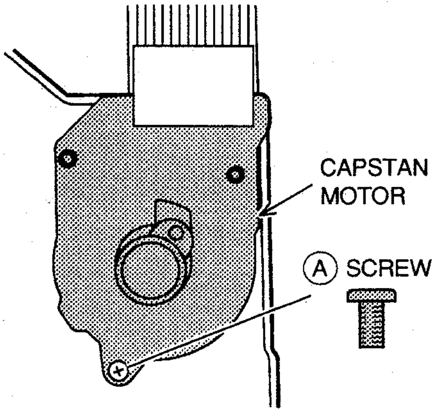

CAPSTAN
MOTOR
Ⓐ SCREW

Fig. 3-22

4. Reassemble in the reverse order for installation.

3-4-6. Removal of the PINCH ROLLER BLOCK

1. Remove the EJECTOR BLOCK (refer to 3-4-3).
2. Remove the Ⓐ screw and remove the PINCH ROLLER BLOCK by pulling it up.

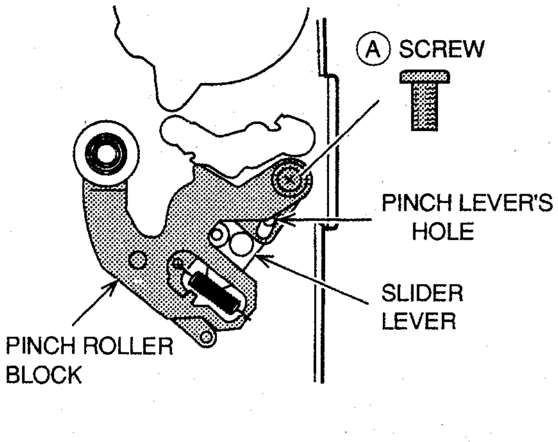

Ⓐ SCREW
PINCH LEVER'S
HOLE
SLIDER
LEVER
PINCH ROLLER
BLOCK

Fig. 3-23

3. When installing, make sure to align the SLIDER LEVER's pin with the hole on the PINCH LEVER as shown in Fig. 3-23.

3-4-7. Removal of the (T) REEL PART

1. Remove the EJECTOR BLOCK and PINCH ROLLER BLOCK (refer to 3-4-3 and 3-4-6).
2. Remove the two BRAKE GUIDE retaining Ⓐ screws.

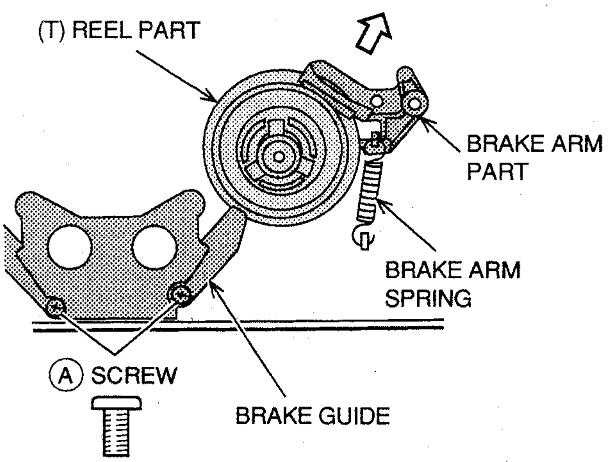

(T) REEL PART
BRAKE ARM PART
BRAKE ARM SPRING
Ⓐ SCREW
BRAKE GUIDE

Fig. 3-24

3. Unhook the BRAKE ARM SPRING then move the BRAKE ARM PART in the direction of the arrow and pull it up, taking care when removing it.
4. Remove the (T) REEL PART from its shaft.
5. Reassemble in the reverse order for installation.

3-4-8. Removal of the (S) REEL PART and TENSION BLOCK

1. Remove the EJECTOR BLOCK (refer to 3-4-3).
2. Remove the Ⓐ screw and remove the BAND GUIDE.

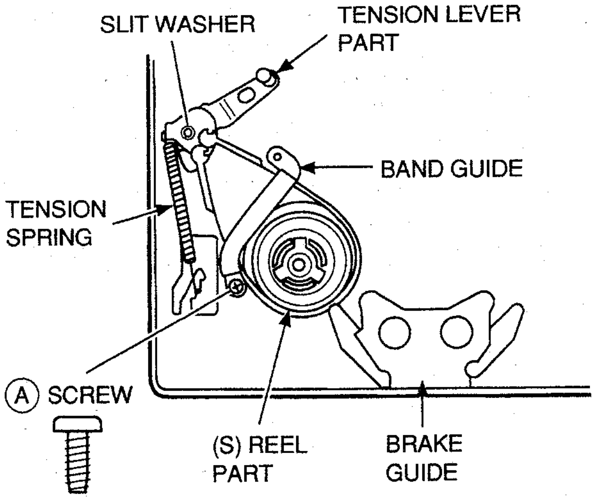

SLIT WASHER
TENSION LEVER PART
BAND GUIDE
TENSION SPRING
Ⓐ SCREW
(S) REEL PART
BRAKE GUIDE

Fig. 3-25

3. Remove the BRAKE GUIDE then remove the (S) REEL PART from its shaft taking care not to damage the TENSION SHEET.
4. Remove the slit washer on the TENSION LEVER PART and unhook the TENSION SPRING then remove the TENSION BLOCK.
5. Reassemble in the reverse order for installation.

3-4-9. Replacement of the SYNCHRO BELT

1. Remove the EJECTOR BLOCK (refer to 3-4-3).
2. Remove the CAPSTAN MOTOR BLOCK (refer to 3-4-5).
3. Remove the PINCH ROLLER BLOCK (refer to 3-4-6).
4. Remove the (T) REEL PART (refer to 3-4-7).
5. Remove the IDLER PART by pulling it up then remove the SYNCHRO BELT as shown in Fig. 3-26.

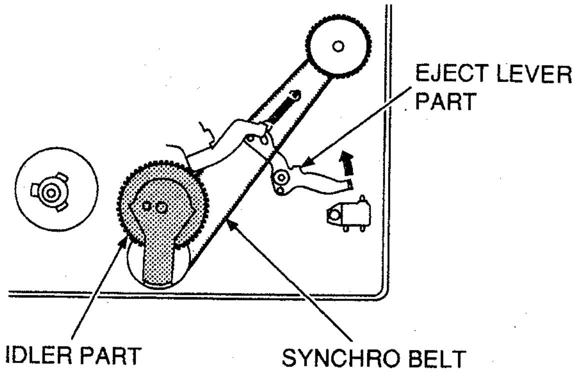

EJECT LEVER PART
IDLER PART
SYNCHRO BELT

Fig. 3-26

6. Reassemble in the reverse order for installation. When replacing a new SYNCHRO BELT, take care not to damage or scratch it.

3-4-10. Replacement of the LOADING MOTOR

1. Remove the EJECTOR BLOCK (refer to 3-4-3).
2. Unsolder the two red and white wires from the flexible PCB.

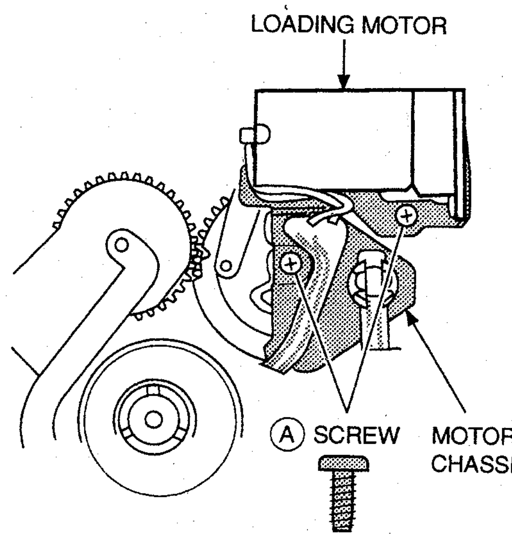

LOADING MOTOR
Ⓐ SCREW
MOTOR CHASSIS

Fig. 3-27

3. Remove the two Ⓐ screws which retain the MOTOR CHASSIS as shown in Fig. 3-27.
4. Remove the two Ⓑ screws which retain the LOADING MOTOR and replace it with a new one as shown in Fig. 3-28.

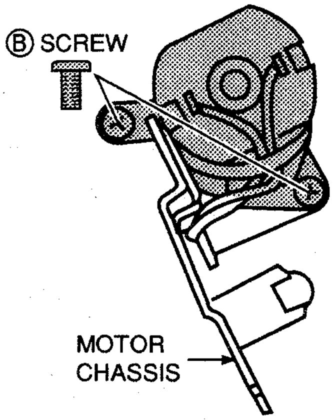


Fig. 3-28

5. Reassemble them in the reverse order for installation. When reattaching the MOTOR CHASSIS on the MECHA. CHASSIS, take care not to loose the timing of the RELAY GEAR and TOGGLE GEAR as shown in Fig. 3-29 (refer to 3-4-11, steps 8 to 9 if necessary).

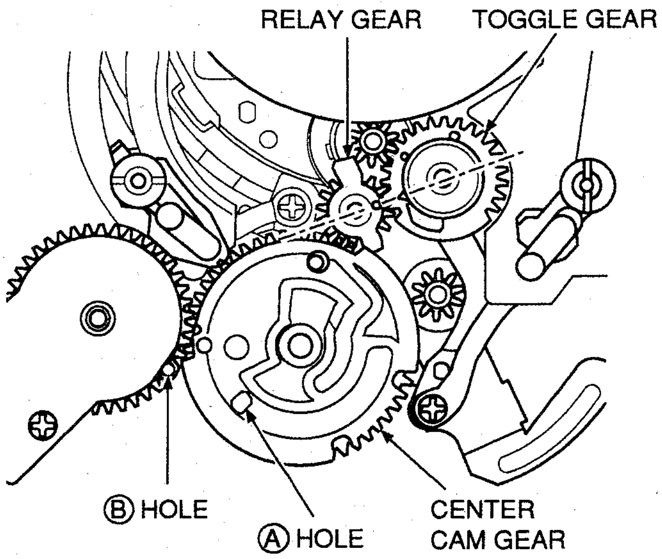


Fig. 3-29

When soldering the two wires, the black wire should be soldered on the right side (marked "B" on the flexible PCB).

3-4-11. Replacement of the MODE SWITCH

1. Remove the EJECTOR BLOCK (refer to 3-4-3).
2. Remove the BAND GUIDE and TENSION BLOCK (refer to 3-4-8, steps 2 & 4).
3. Remove the two MOTOR CHASSIS retaining screws (refer to 3-4-10, step 3)
4. Remove the RELAY GEAR and CENTER CAM GEAR by pulling them upwards as shown in Fig. 3-30.

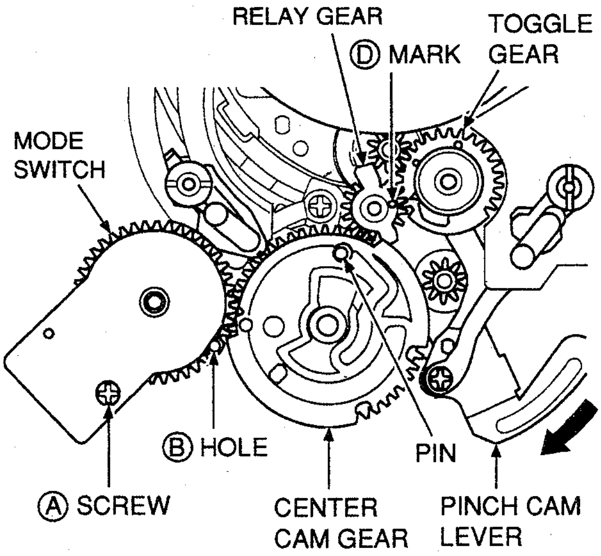


Fig. 3-30

5. Remove the Ⓐ screw which retains the MODE SWITCH and remove the MODE SWITCH carefully so as not to damage the flexible PCB as shown in Fig. 3-30.
6. Unsolder the MODE SWITCH and carefully peel it off from the flexible PCB .
7. Replace it with a new one and install it in the reverse order. When soldering the MODE SWITCH, take special care to place the MODE SWITCH in the correct position on the flexible PCB. And make sure that the MODE SWITCH's Ⓑ hole is aligned with its reference hole on the chassis and the hole on the SLIDER PLATE PART.
8. Place the CENTER CAM GEAR on the MECHA. CHASSIS. At this point, align the Ⓒ part (part with unbroken teeth) of the MODE SWITCH with the groove on the CENTER CAM GEAR as shown in Fig. 3-31.

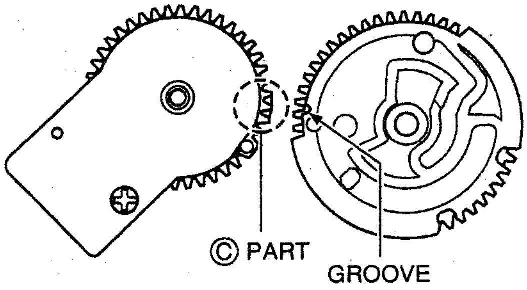


Fig. 3-31

And also move the PINCH CAM LEVER in the direction of the arrow and set it where the pin of the PINCH CAM LEVER is visible through the hole on the CENTER CAM GEAR as shown in Fig. 3-30.

9. Place the RELAY GEAR so that the Ⓓ mark on the RELAY GEAR is aligned with the " ◁ " mark on the TOGGLE GEAR as shown in Fig. 3-30.
10. Attach the MOTOR CHASSIS by tightening the two retaining screws.
11. Supply DC 4.5 V to the LOADING MOTOR and confirm that the loading mechanism operates properly in both the loading and unloading directions and each gear is correctly aligned.

NOTE:

Take care not to damage the flexible PCB near the MOTOR CHASSIS during this procedure.

3-4-12. Disassembling the loading mechanism

1. Remove the EJECTOR BLOCK and HEAD DRUM BLOCK (refer to 3-4-1 and 3-4-3).
2. Remove the CAPSTAN MOTOR BLOCK (refer to 3-4-5, 2 to 3).
3. Remove the PINCH ROLLER BLOCK (refer to 3-4-6, 2)
4. Remove the LOADING MOTOR BLOCK retaining screw (refer to 3-4-10, step 3).
5. Remove the Ⓐ screw which retains the SUPPLY LOADING LEADER PART as shown in Fig. 3-32.

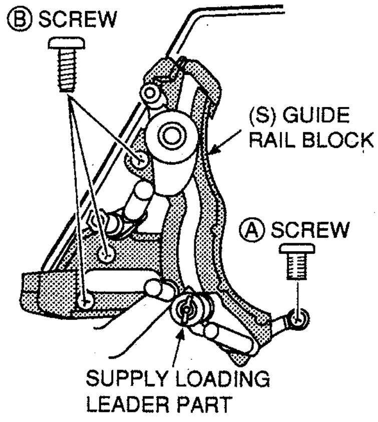

Ⓑ SCREW
(S) GUIDE RAIL BLOCK
Ⓐ SCREW
SUPPLY LOADING LEADER PART

Fig. 3-32

6. Remove the three Ⓑ screws then remove the (S) GUIDE RAIL BLOCK as shown in Fig. 3-32.

7. Remove the Ⓒ screw which retains the (T) GUIDE RAIL as shown in Fig. 3-33.

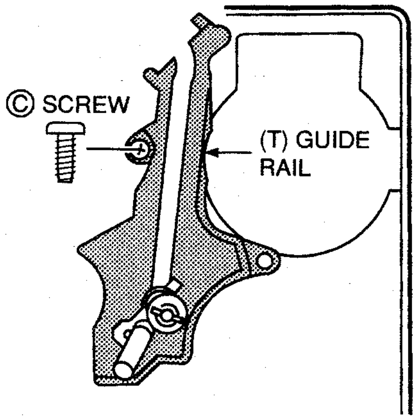
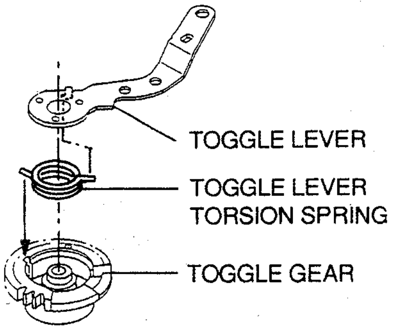

Ⓒ SCREW
(T) GUIDE RAIL

Fig. 3-33

8. Then remove the RELAY GEAR and TOGGLE GEAR BLOCK (TOGGLE GEAR, TOGGLE LEVER and TOGGLE LEVER TORSION SPRING) with the TAKE UP LOADING LEADER PART, take care not to lose the TOGGLE LEVER TORSION SPRING as it may jump free.


TOGGLE LEVER
TOGGLE LEVER TORSION SPRING
TOGGLE GEAR

TOGGLE GEAR BLOCK

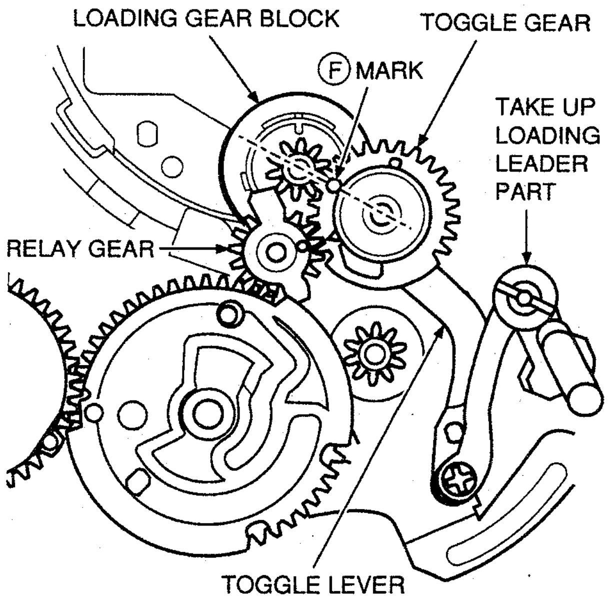

LOADING GEAR BLOCK
TOGGLE GEAR
Ⓕ MARK
TAKE UP LOADING LEADER PART
RELAY GEAR
TOGGLE LEVER

Fig. 3-34

9. Remove the two Ⓓ screws then remove the GEAR PLATE PART as shown in Fig. 3-35.

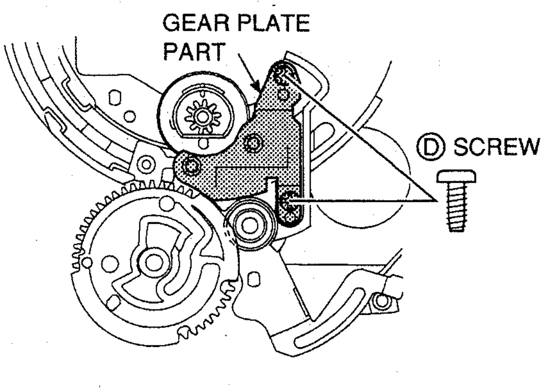
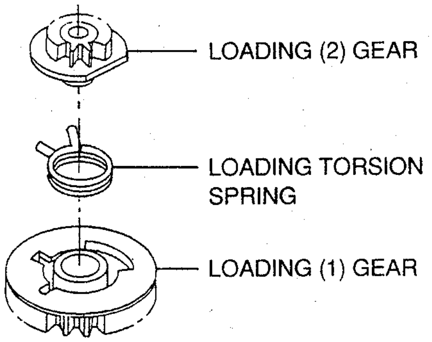


Fig. 3-35

10. Remove the LOADING GEAR BLOCK (LOADING (1) GEAR, LOADING (2) GEAR and LOADING TORSION SPRING) and slide the RING SLIDER in the clockwise direction to remove the RING SLIDER from the RING HOLDER as shown in Fig. 3-36. Then remove the RING HOLDER and replace it if necessary.



LOADING GEAR BLOCK

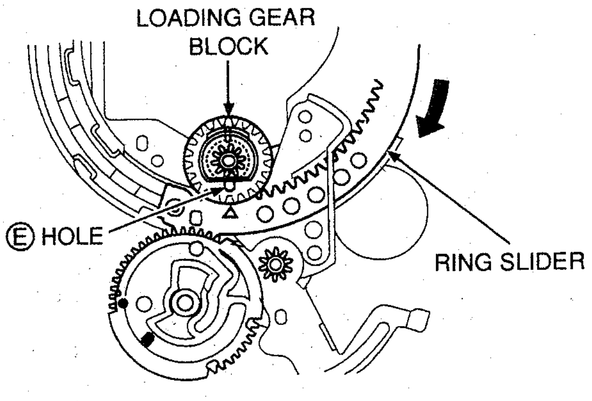


Fig. 3-36

11. To reassemble these parts, proceed in the reverse order of step 1 to 10.
    When reassembling parts concerned with the MODE SWITCH's timing, proceed with special care.

1) When placing the LOADING GEAR BLOCK on the MECHA. CHASSIS, both the LOADING GEAR BLOCK's Ⓔ hole and RING SLIDER's △ mark should be aligned with their reference hole on the MECHA. CHASSIS as shown in Fig. 3-36.
2) When placing the TOGGLE GEAR BLOCK, the TOGGLE GEAR BLOCK's Ⓕ mark should be aligned with the LOADING GEAR BLOCK's shaft as shown in Fig. 3-34.
3) When placing the RELAY GEAR, the RELAY GEAR's Ⓓ mark must be aligned with the ◁ mark of the TOGGLE GEAR (refer to 3-4-11, step 9). At this point confirm that the Ⓒ part (the part with unbroken teeth) of the MODE SWITCH is aligned with the groove on the CENTER CAM GEAR and the MODE SWITCH's Ⓑ hole is aligned with its reference hole on the CHASSIS and the hole of the SLIDER PLATE (refer to Fig. 3-31 and 3-30).

IV. MECHANICAL ADJUSTMENT

4-1. BACK TENSION

1. Play back a CASSETTE TORQUE METER TW-6111 (AJ-729749J) and confirm that the reading of the SUPPLY REEL on the meter is 6.5 to 9 g-cm.
2. If the result is not satisfactory, loosen the Ⓐ screw and adjust the TB HOLDER position repeatedly until the result is satisfactory.

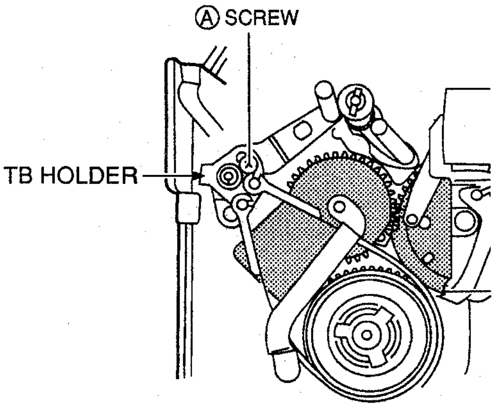


Fig. 4-1

3. The fluctuation of the reading during playback, should be less than 2 g-cm.
   If the result is not satisfactory, check the (S) REEL PART.

4-2. TAPE TRANSPORT ADJUSTMENT

NOTE:

1. The following adjustments are required only when an irregularity is found since these adjustments are precisely corrected at the factory.
2. When the HEAD DRUM BLOCK is replaced, perform only step 4-2-3, loading leader height adjustment.
3. Remove the CAMERA BLOCK first before making the adjustment and set the unit to the TEST mode 02 (refer to the information section on page 5).

4-2-1. REVIEW ARM height adjustment

1. Play back a recorded tape which is no longer needed.
2. Check the tape transport near the REVIEW ARM TAPE GUIDE. If it is not satisfactorily, turn the Ⓐ nut on the REVIEW ARM TAPE GUIDE until the edge of the tape barely touches the lower part of the TAPE GUIDE without any curl or wrinkle.

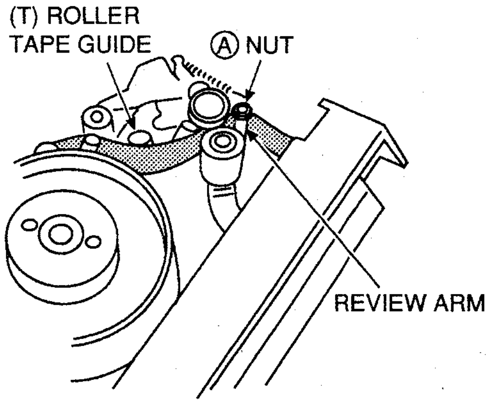


Fig. 4-2

3. Confirm that there is no curl or wrinkle between the PINCH ROLLER and REVIEW ARM TAPE GUIDE.

4-2-2. SUPPLY TAPE GUIDE height adjustment

1. Play back a recorded tape which is no longer needed and set the unit to the REVIEW mode.
2. Check the tape transport near the SUPPLY TAPE GUIDE. If it is not satisfactorily, turn the Ⓑ nut on the SUPPLY TAPE GUIDE until there is no curl or wrinkle near the SUPPLY TAPE GUIDE.

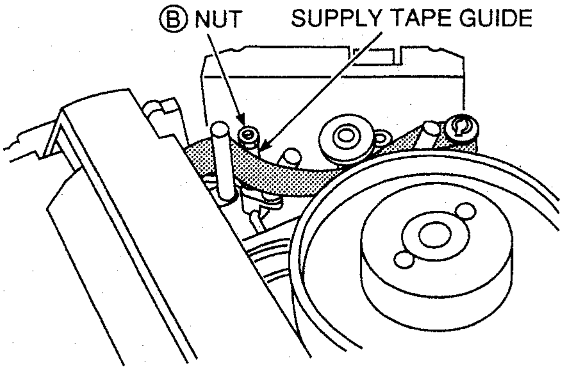


Fig. 4-3

3. Confirm that there is no curl or wrinkle between the (T) ROLLER TAPE GUIDE and REVIEW ARM TAPE GUIDE as shown in Fig. 4-2.
4. If the result is not satisfactory, readjust the REVIEW ARM TAPE GUIDE and SUPPLY TAPE GUIDE height.

4-2-3. LOADING LEADER height adjustment

1. Slightly loosen the set screws on the lower part of both the LOADING LEADER (T) PART and (S) PART with a hexagonal screw driver, so that the tape guide can be adjusted with reasonable tightness.

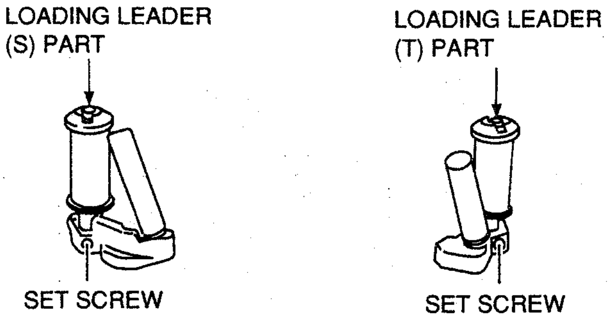

LOADING LEADER (S) PART
LOADING LEADER (T) PART
SET SCREW
SET SCREW

Fig. 4-4

2. Connect an oscilloscope's CH-1 to TERMINAL PCB P27 ① pin (PB ENVE) and CH-2 to ② pin (SWP) for triggering.
3. Play back the reference tape TF-200RFS (AT-751834J).
4. Turn the LOADING LEADER (T) and (S) head individually to obtain a flat RF envelope, as the ideal envelope shown in Fig. 4-5.
5. Play back the reference tape TF-201RFL (AT-751835J) then finely adjust both the LOADING LEADERs to obtain the best RF envelope.
6. Set the unit to the TEST mode 11 (refer to the information section) and press the WHITE BALANCE button and confirm that the RF envelope shares about 2/3 of the switching pulse width (including PCM zone) and also the fluctuating envelope's upper and lower edge is almost flat.

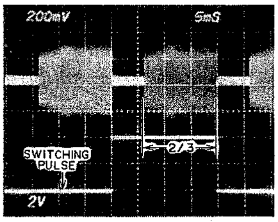


Fig. 4-6

7. After the adjustment is completed, tighten both the set screws with the hexagonal screw driver
8. In case the result is not satisfactory, repeat the adjustment from 4-2-1 to 4-2-3, step 5.

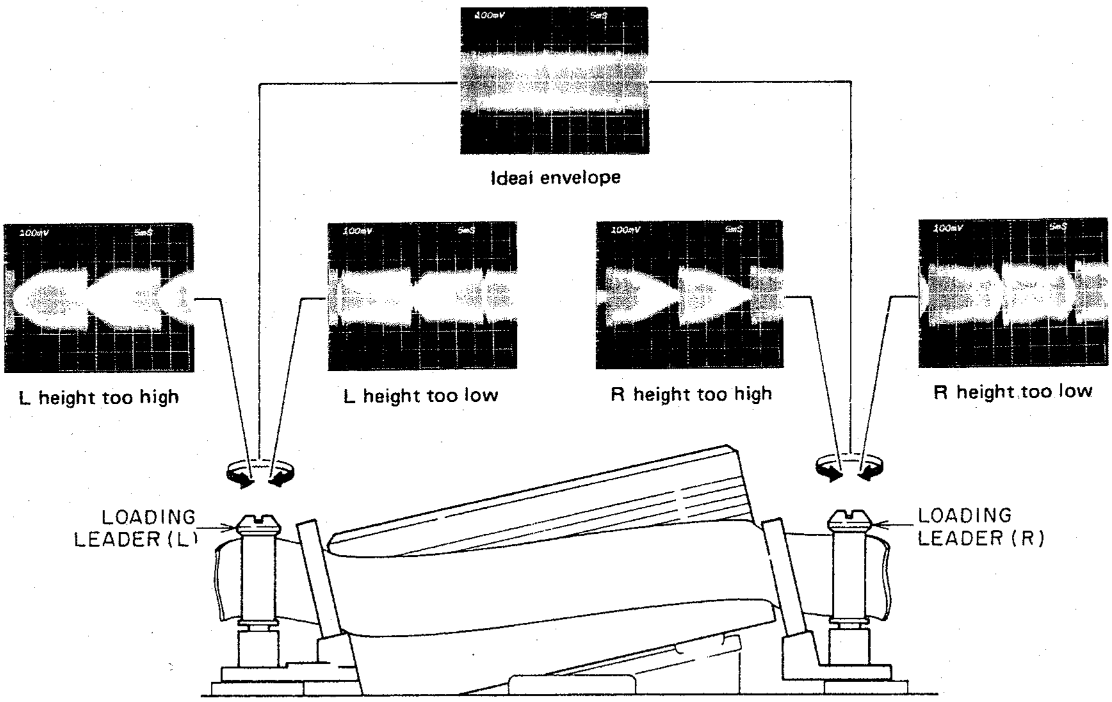

100mV
5mS
Ideal envelope
L height too high
L height too low
R height too high
R height too low
LOADING LEADER (L)
LOADING LEADER (R)

Fig. 4-5

V. ELECTRICAL ADJUSTMENT

Precautionary items prior to adjustments.

1. The video output terminal should be terminated with 75 ohms (connect a dummy load or 75 ohms input TV).
2. Some adjustments should be performed in the "TEST MODE". Refer to the "INFORMATION" section on page 5.
3. When adjusting the MAIN PCB (VTR section), Connect a colour bar generator to the TERMINAL PCB which should be supplied as a servicing jig.
4. When adjusting the CAMERA section, the TERMINAL PCB is necessary as well as the MAIN PCB adjustment.
5. Some adjustments require the MAIN PCB to be turned over and extension cables to be connected. (5-2-2, step 1 & 2).

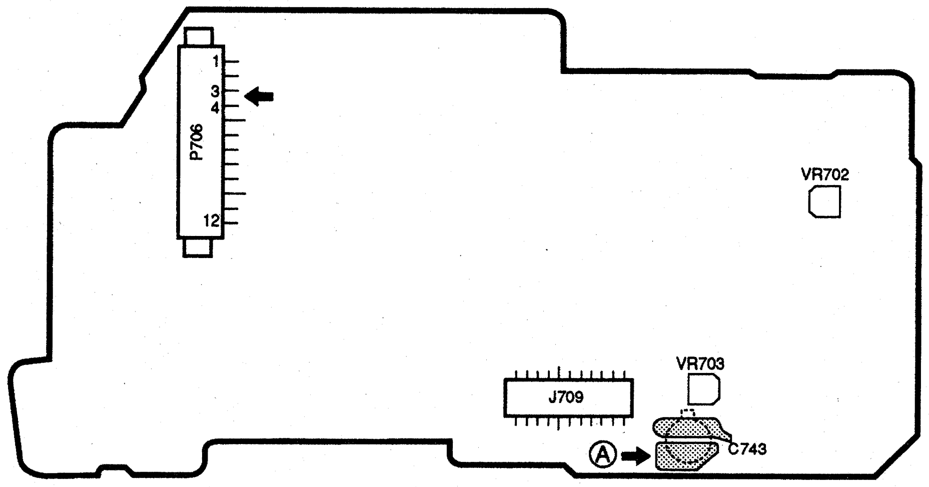
The following test tapes are required

Test tape	Part No.
TF-200RFS	AT-751834J
TF-201RFL	AT-751835J
TF-202CBS	AT-751836J
TF-203CBL	AT-751837J
TF-250AT	AT-751833J

5-1. POWER SUPPLY PCB

Note:

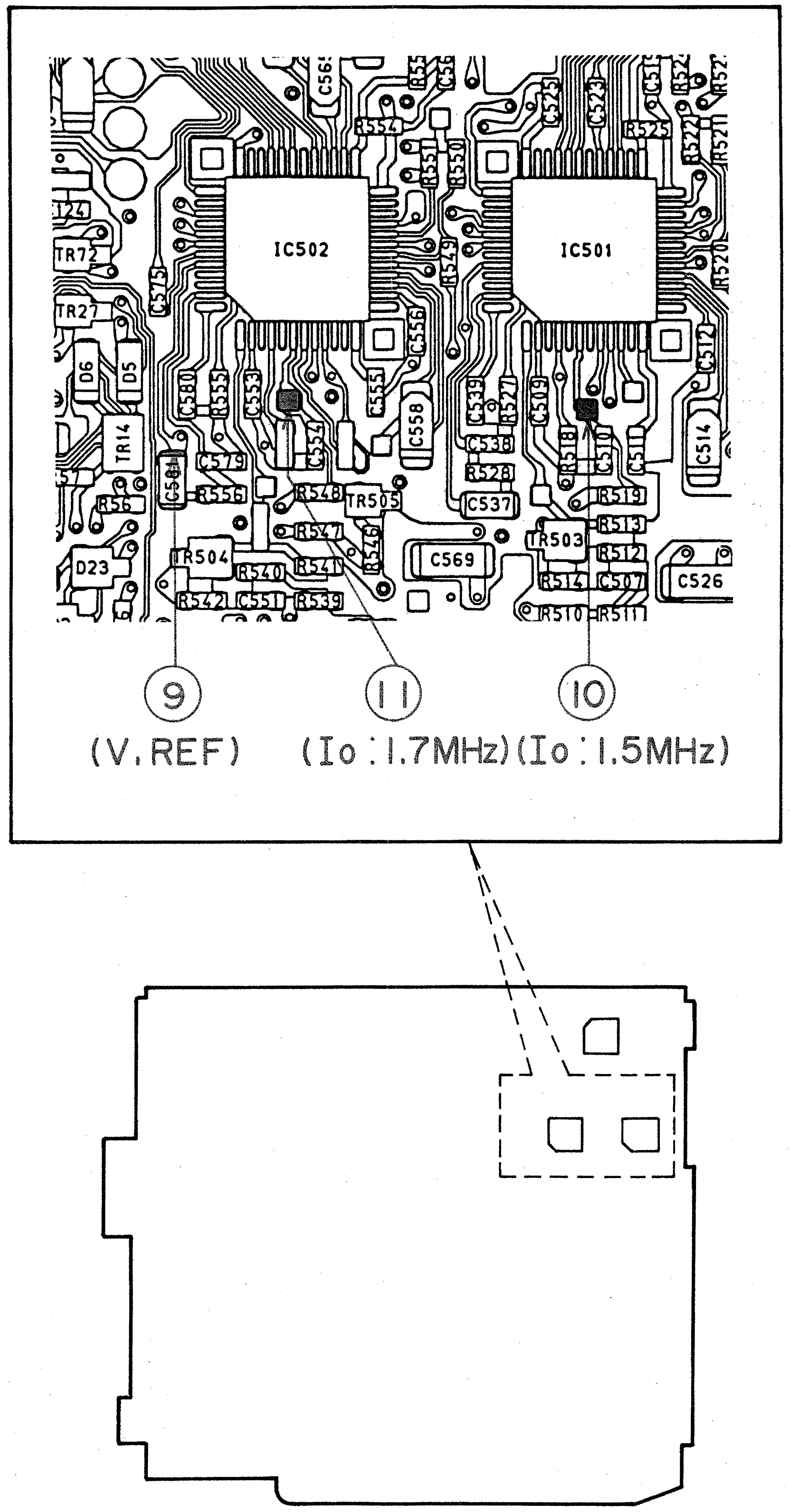
Check that there is no power supplied to the unit before making adjustment. Then detach the POWER SUPPLY PCB from the MAIN PCB and remove the shield cover with a soldering iron. Connect the MAIN PCB P309 and POWER SUPPLY PCB J709 with the extension cable. Then supply power to the unit and slide the power switch to the "CAMERA" position.



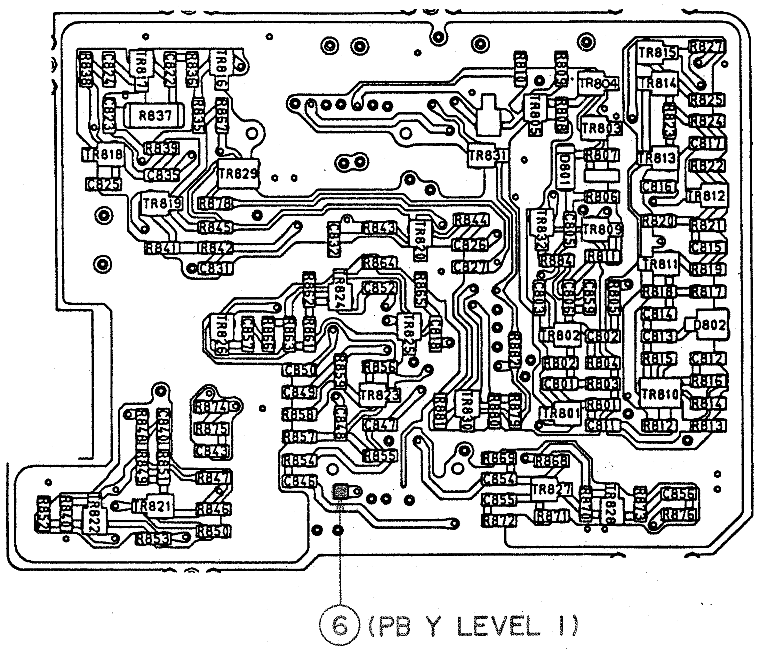
POWER SUPPLY PCB (TOP VIEW)

Step	Adjustment item	Input signal or test tape	Mode	Test point	Adjustment part	Result and remarks
1	AL 5V	-	CAMERA ON	Pattern (shown Ⓐ arrow)	VR703	Connect a digital DC voltmeter to point Ⓐ (where the C743 positive lead is soldered) then adjust VR703 so that the reading on the meter is 4.97 ± 0.03 V.
2	CAMERA 5V	-	CAMERA ON	P706 ③ or ④ pin	VR702	Connect a digital DC voltmeter to the P706 ③ or ④ pin then adjust the VR702 so that the reading on the meter is 4.78 ± 0.03 V.

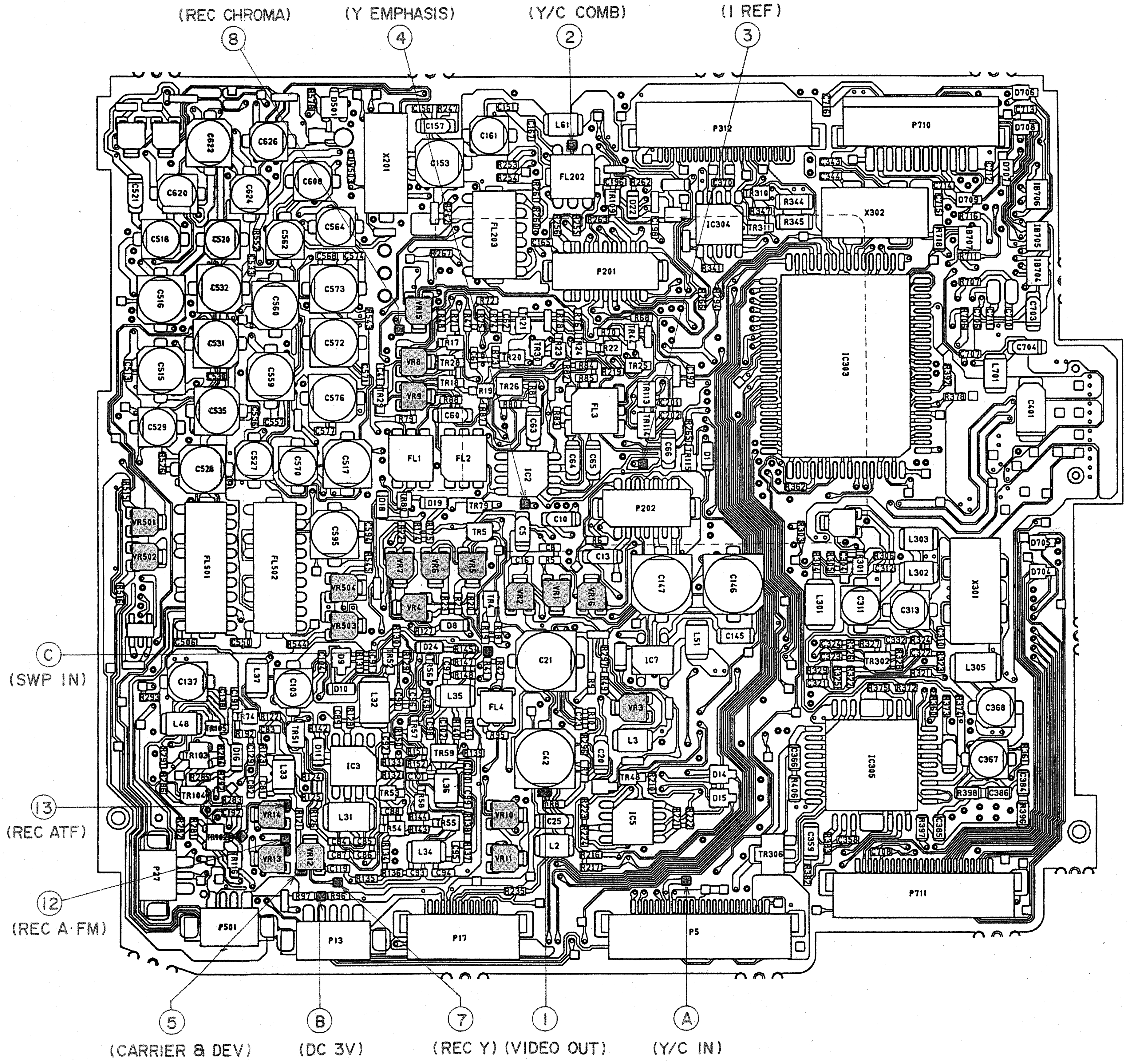
5-2. MAIN PCB



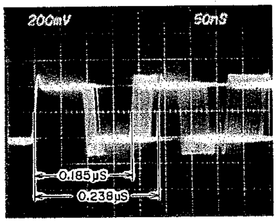
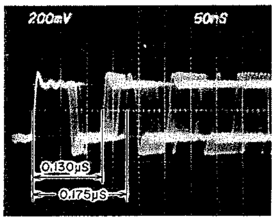
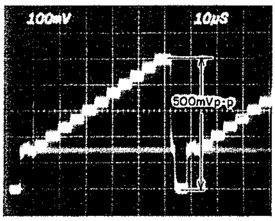
MAIN PCB (TOP VIEW)

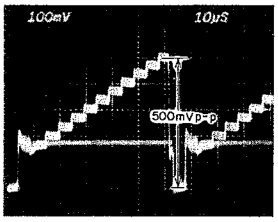
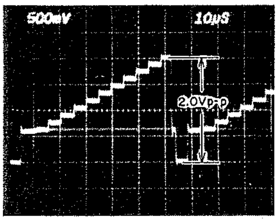
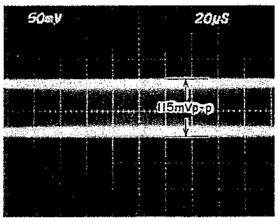
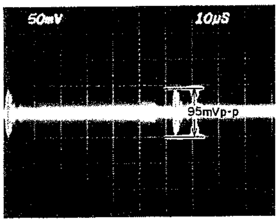

⑥ (PB Y LEVEL I)

Hi8 SUB PCB (BOTTOM VIEW)


(REC CHROMA)
⑧
(Y EMPHASIS)
④
(Y/C COMB)
②
(I REF)
③
Ⓒ
(SWP IN)
⑬
(REC ATF)
⑫
(REC A·FM)
⑤
(CARRIER & DEV)
Ⓑ
(DC 3V)
⑦
(REC Y)
①
(VIDEO OUT)
Ⓐ
(Y/C IN)

MAIN PCB (BOTTOM VIEW)

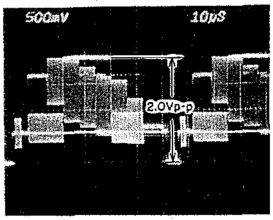
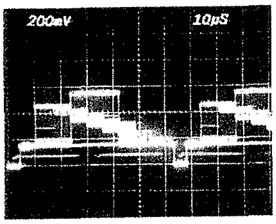
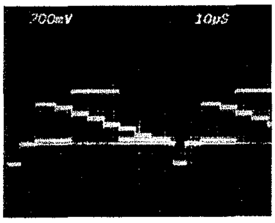
Step	Adjustment item	Input signal or test tape	Mode	Test point	Adjustment part	Result and remarks
5	NORMAL FM CARRIER & DEVIATION	Stair step signal	CAMERA EE & TEST mode 02	Land ⑤ (lead of VR12)	VR7 & VR4	 Supply the stair step signal in the same way as step 1. Connect an oscilloscope to land ⑤ (lead of VR12) and adjust VR7 so that the sync tip becomes 0.238 µs (4.2 MHz). Adjust VR4 so that the white peak becomes 0.185 µs (5.4 MHz). Adjust VR7 and VR4 alternately until the result is satisfactory.
6	Hi8 FM CARRIER & DEVIATION	Stair step signal & Hi8 MP blank tape	CAMERA EE & TEST mode 02	Land ⑤	VR6 & VR5	 Supply the stair step signal in the same way as step 1. Connect an oscilloscope to land ⑤ and adjust VR6 so that the sync tip becomes 0.175 µs (5.7 MHz). Adjust VR5 so that the white peak becomes 0.130 µs (7.7 MHz). Adjust VR6 and VR5 alternately until the result is satisfactory. **Note:** This Hi-8 adjustment should be performed after the normal adjustment had been performed in step 5.
7	Hi8 PB Y LEVEL.1	Stair step signal	REC PB & TEST mode 02	Land ⑥	VR10	 Supply the stair step signal in the same way as step 1 and make a recording on the Hi8 MP blank tape. Then disconnect the Y/C IN wire at land Ⓐ and connect the camera's FPC cable to the P5 connector. Disengage the test mode 02 and play back the recorded portion of the tape. Connect an oscilloscope to the land ⑥ on the Hi8 SUB PCB and adjust VR10 so that the Y level is 500 mVp-p.

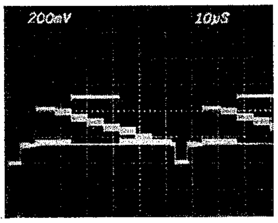
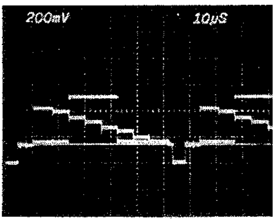
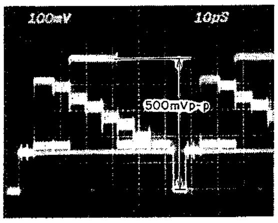
Step	Adjustment item	Input signal or test tape	Mode	Test point	Adjustment part	Result and remarks
8	NORMAL PB Y LEVEL.1	TEST TAPE TF-200RFS	VTR PB	Land ⑥	VR11	 Connect an oscilloscope to the land ⑥ then adjust VR11 so that the Y level is 500 mVp-p.
9	PB Y LEVEL. 2	TEST TAPE TF-200RFS	VTR PB	Land ①	VR9	 Connect an oscilloscope to the land ① and adjust VR9 so that the Y level is 2.0 Vp-p.
10	VIDEO REC CURRENT	Hi8 MP blank tape	CAMERA REC	Land ⑦ (or VR12 center lead) & land ⑧ (or VR15 center lead)	VR12 & VR15	 Load a Hi8 MP type blank tape and connect an oscilloscope to the land ⑦ (VR12 center lead) then adjust VR12 (Y REC CURRENT) so that the Y REC CURRENT is 115 mVp-p.  Connect CH-1 of the oscilloscope to the land ⑧ (or VR15 center lead) and CH-2 to VIDEO OUT or fH/2 for triggering. Adjust VR15 so that the CHROMA REC CURRENT is 95 mVp-p at the burst signal area as shown.

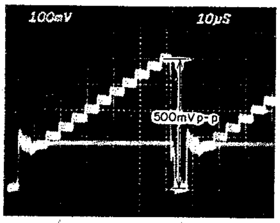
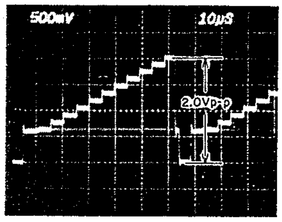
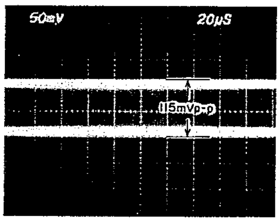
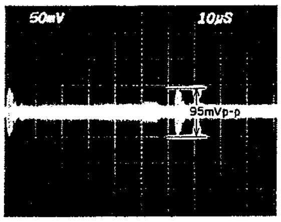
5-2-1. VIDEO ADJUSTMENT

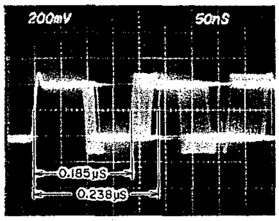
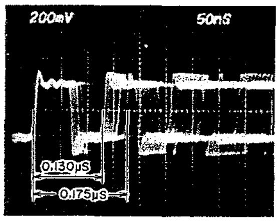
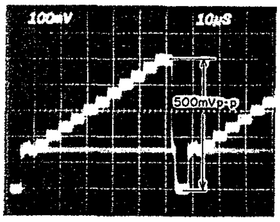
Note:

1. Solder the Y/C OUT lead wire from the TERMINAL PCB to the land Ⓐ before making the adjustment.
2. If the REC → PB picture quality is not satisfactory even if the REC CURRENT adjustment has been performed, demagnetize the rotary heads and try again.

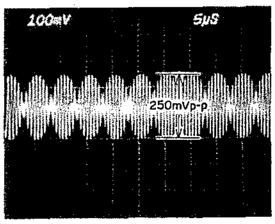
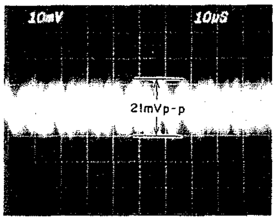
Step	Adjustment item	Input signal or test tape	Mode	Test point	Adjustment part	Result and remarks
1	VIDEO AGC	PAL colour bar signal	CAMERA EE & TEST mode 02	Land ①	VR3	 Disconnect the P5's FPC cable then solder the Y/C out lead wire to the land Ⓐ as shown on page 28. Then engage the test mode 02 and supply the PAL colour bar signal. Connect an oscilloscope to the land ① and adjust VR3 so that the VIDEO level is 2.0 Vp-p.
2	Y/C COMB FILTER	PAL colour bar signal	CAMERA EE & TEST mode 04	Land ②	VR2 & VR16	 INCORRECT  CORRECT Supply the colour bar signal (the same as step 1) and connect an oscilloscope to land ②. Engage the test mode 04 then press the "COUNTER RESET" button. And adjust VR2 and VR16 alternately so that the chroma level is minimum.

Step	Adjustment item	Input signal or test tape	Mode	Test point	Adjustment part	Result and remarks
3	I REFERENCE	bar signal PAL colour	CAMERA EE & TEST mode 04	Land ③	VR1	 INCORRECT  CORRECT Remove the Hi8 SUB PCB from the MAIN PCB and solder a lead wire on the land ③. Then replace the Hi8 SUB PCB at the original position. Supply the colour bar signal (the same as step 1) and connect an oscilloscope to the lead wire from the land ③. Connect the land Ⓑ (DC 3V) to the land Ⓒ (SWP IN) with a jumper wire so that the output of the land ③ will be disappeared. Press the "COUNTER RESET" button to resume output on the land ③. Then adjust VR1 so that the chroma level is minimum. After the adjustment has been completed, remove the lead wire on the land ③ and the jumper wire between the lands Ⓑ and Ⓒ.
4	Y EMPHASIS	PAL colour bar signal	CAMERA EE & TEST mode 02	Land ④	VR8	 Supply the same colour bar signal as step 1 and remove the Hi8 SUB PCB from the MAIN PCB. Connect an oscilloscope to the land ④ and adjust VR8 so that the Y level is 500 mVp-p. After the adjustment has been completed, Replace the Hi8 SUB PCB at the original position.

Step	Adjustment item	Input signal or test tape	Mode	Test point	Adjustment part	Result and remarks
8	NORMAL PB Y LEVEL.1	TEST TAPE TF-200RFS	VTR PB	Land ⑥	VR11	 Connect an oscilloscope to the land ⑥ then adjust VR11 so that the Y level is 500 mVp-p.
9	PB Y LEVEL. 2	TEST TAPE TF-200RFS	VTR PB	Land ①	VR9	 Connect an oscilloscope to the land ① and adjust VR9 so that the Y level is 2.0 Vp-p.
10	VIDEO REC CURRENT	Hi8 MP blank tape	CAMERA REC	Land ⑦ (or VR12 center lead) & land ⑧ (or VR15 center lead)	VR12 & VR15	 Load a Hi8 MP type blank tape and connect an oscilloscope to the land ⑦ (VR12 center lead) then adjust VR12 (Y REC CURRENT) so that the Y REC CURRENT is 115 mVp-p.  Connect CH-1 of the oscilloscope to the land ⑧ (or VR15 center lead) and CH-2 to VIDEO OUT or fH/2 for triggering. Adjust VR15 so that the CHROMA REC CURRENT is 95 mVp-p at the burst signal area as shown.

Step	Adjustment item	Input signal or test tape	Mode	Test point	Adjustment part	Result and remarks
5	NORMAL FM CARRIER & DEVIATION	Stair step signal	CAMERA EE & TEST mode 02	Land ⑤ (lead of VR12)	VR7 & VR4	 Supply the stair step signal in the same way as step 1. *Connect an oscilloscope to* land ⑤ (lead of VR12) and adjust VR7 so that the sync tip becomes 0.238 μs (4.2 MHz). Adjust VR4 so that the white peak becomes 0.185 μs (5.4 MHz). Adjust VR7 and VR4 *alternately* until the result is satisfactory.
6	Hi8 FM CARRIER & DEVIATION	*Stair step* signal & Hi8 MP blank tape	CAMERA EE & TEST *mode 02*	Land ⑤	VR6 & VR5	 Supply the stair step signal in the same way as step 1. Connect an oscilloscope to land ⑤ and adjust VR6 so that the sync tip becomes 0.175 μs (5.7 MHz). Adjust VR5 so that the white peak becomes 0.130 μs (7.7 MHz). Adjust VR6 and VR5 alternately until the result is satisfactory. **Note:** This Hi-8 adjustment should be performed after the normal adjustment had been performed in step 5.
7	Hi8 PB Y LEVEL.1	Stair step signal	REC → PB & TEST mode 02	Land ⑥	VR10	 Supply the stair step signal in the same way as step 1 and make a recording on the Hi8 MP blank tape. Then disconnect the Y/C IN wire at land Ⓐ and connect the camera's FPC cable to the P5 connector. Disengage the test mode 02 and play back the recorded portion of the tape. Connect an oscilloscope to the land ⑥ on the Hi8 SUB PCB and adjust VR10 so that the Y level is 500 mVp-p.

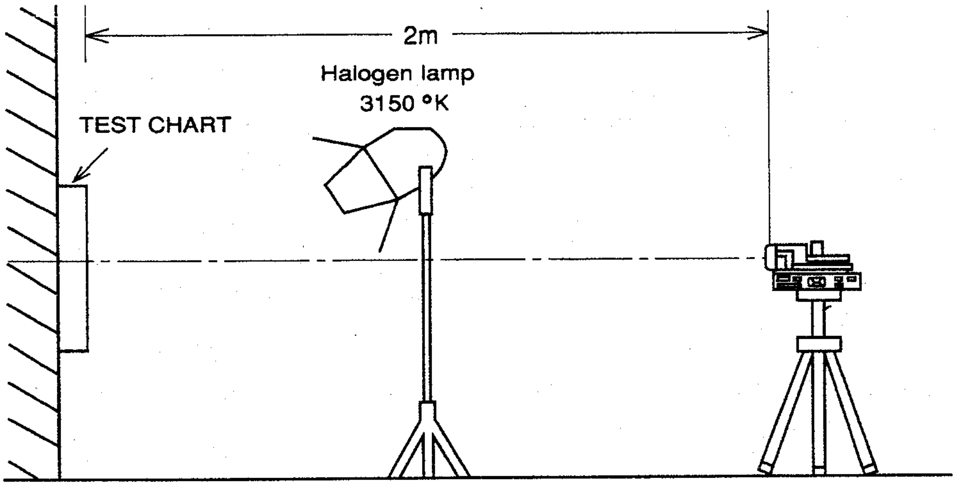
5-2-2. AUDIO & SERVO ADJUSTMENT

Step	Adjustment item	Input signal or test tape	Mode	Test point	Adjustment part	Result and remarks
1	Io (1.5 MHz)	TEST TAPE TF-200RFS	PB & audio mode: stereo	Land ⑨ (C581 lead) & ⑩ (Io : 1.5 MHz)	VR502	Play back the test tape TF-200RFS. Read the V REF voltage at the land ⑨ (the voltage should be about 2.1 V) with a digital DC voltmeter. Then connect a digital DC voltmeter to the land ⑩ and adjust VR502 so that the voltage is exactly the same as V REF voltage.
2	Io (1.7 MHz)	TEST TAPE TF-200RFS	PB & audio mode: stereo	Land ⑨ (C581 lead) & ⑪ (Io : 1.7 MHz)	VR503	Play back the test tape TF-200RFS. Read the V REF voltage at the land ⑨ (the voltage should be about 2.1 V) with a digital DC voltmeter. Then connect a digital DC voltmeter to the land ⑪ and adjust VR503 so that the voltage is exactly the same as V REF voltage.
3	L+R DEV	TEST TAPE TF-203CBL	PB & audio mode: L-CH only	LINE OUT	VR501	Play back the test tape TF-203CBL and set the audio monitor to L-CH and adjust VR501 so that the output level is −7.5 dBs.
4	L−R DEV	TEST TAPE TF-203CBL	PB & audio mode: R-CH only	LINE OUT	VR504	Play back the test tape TF-203CBL and set the audio monitor to R-CH. Adjust VR504 so that the output level is −7.5 dBs.
5	A. FM REC CURRENT	–	CAMERA REC	Land ⑫ (or VR13 lead)	VR13	 Connect an oscilloscope to the land ⑫ (VR13 lead) and adjust VR13 so that the AUDIO FM REC CURRENT is 250 mVp-p, as shown.
6	ATF REC CURRENT	–	CAMERA REC	Land ⑬ (or VR14 lead)	VR14	 Connect an oscilloscope to the land ⑬ (VR14 lead) and adjust VR14 so that the ATF REC CURRENT is 21 mVp-p as shown.

5-3. CAMERA BLOCK ADJUSTMENT

5-3-1. STANDARD ADJUSTMENT

Standard setting for the CAMERA BLOCK adjustment

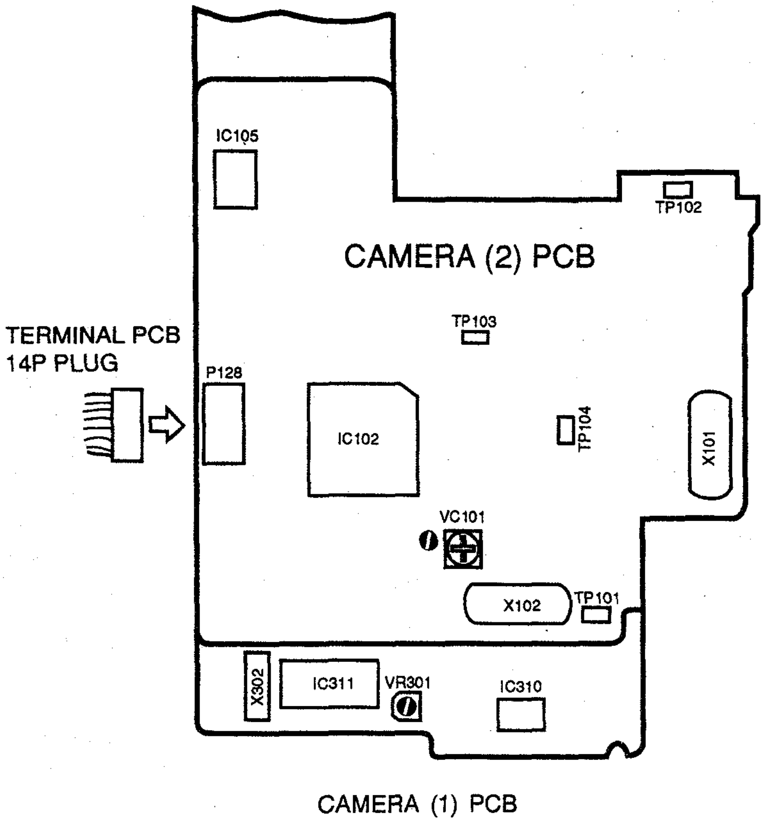


- Pattern: Reflection type, GREY SCALE or COLOUR BAR (we recommend the use of a light box with a transparent chart, instead of the relection type, and a halogen lamp)
- Light: 3150 ± 50 °K (colour temperature), 3500 ± 500 Lx (intensity)
- Distance between the pattern and lens: 2 m
- Waveform size: 40 μs (at stair step part or colour bar part) on the oscilloscope
- VECTOR SCOPE setting: 75 % saturation

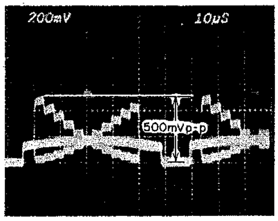
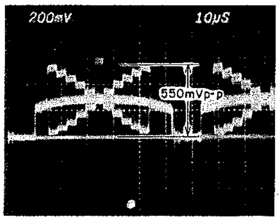
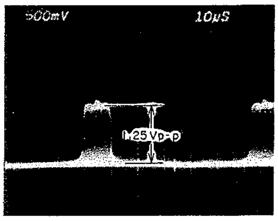
Note

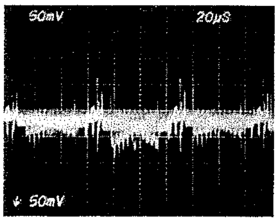
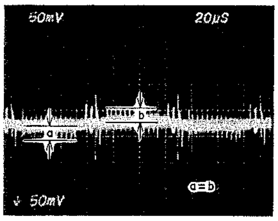
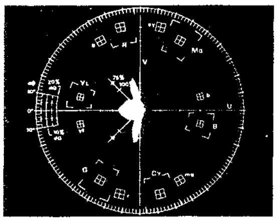
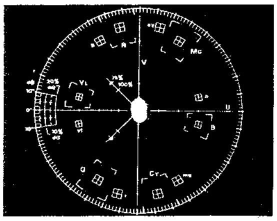
*Most of the camera adjustments should be performed in "TEST mode 81" using the micro computer and D/A converter equipped with this video movie.
To set the movie to "TEST mode 81", refer to the "TEST MODE" section in "INFORMATION" on page 5.

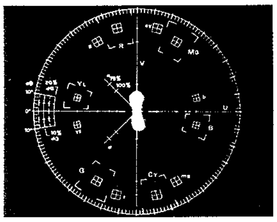
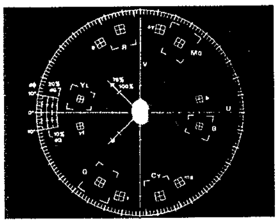
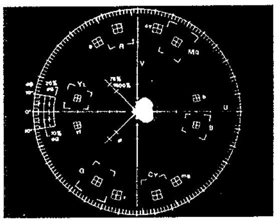
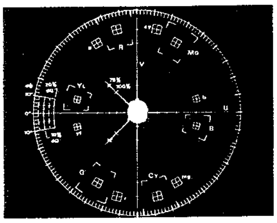
1. Engage TEST mode 81, a squid mark appears on the screen. Then press the "display" button. A number of numeral rows appear on the screen. The 2 digit number in the right upper corner is a preset number. (Make sure that the ELECTRIC VIEWFINDER is connected, to display the data on the screen.)
2. Start the adjustment from "No.00" (preset No.00) and each time you press the SET button or > button, you can proceed to the next preset number. Pressing the < button will return to the previous preset number.
   When proceeding to the next preset number without adjustment, never press the "SET" button, only use the > button.
3. Adjustment is possible by pressing the ∧ or ∨ buttons, and the data you are adjusting is displayed in hexadecimal numbers on the display during adjustment.
4. Pressing the SET button will conclude the adjustment in each preset number. Adjusted data will be memorized and stored in the EEP ROM IC.
5. To make adjustment easy, connect CH-2 of an oscilloscope to the TERMINAL PCB P128 ① pin (1/2 fH) for triggering in most cases.

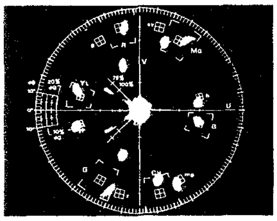
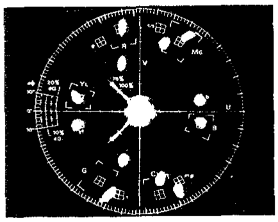
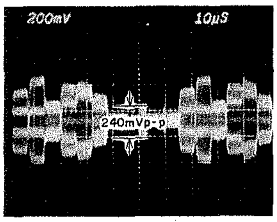
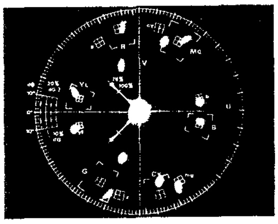

IC105
TP102
CAMERA (2) PCB
TERMINAL PCB
14P PLUG
TP103
P128
IC102
TP104
X101
VC101
X102
TP101
X302
IC311
VR301
IC310
CAMERA (1) PCB

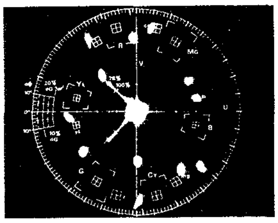
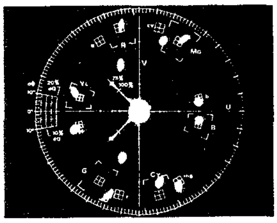
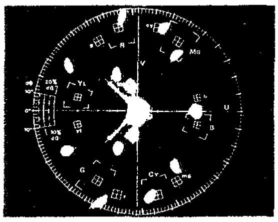
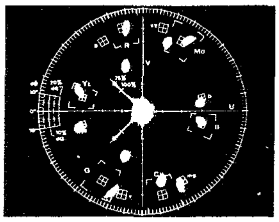
Step	Adjustment item	Input signal or test tape	Mode	Test point	Adjustment part	Result and remarks
1	fsc	–	EE, "PRESET No.00"	TP101 (CAMERA (2) PCB)	VC101	Connect a digital DC voltmeter to TP101. Adjust VC101 so that the reading on the meter is 2.2 ± 0.1 V. (Pressing the "SET" button will skip "PRESET No.01" and proceed to "PRESET No.02" automatically.)
2	HALL AMP OFF-SET.1	–	EE, "PRESET No.00"	–	–	Press the "SET" button.
3	HALL AMP OFF-SET.2	–	EE, "PRESET No.01"	–	–	No operation.
4	ϕR OFF-SET	–	EE, "PRESET No.02"	TV SCREEN	∧ or ∨ button	If a white line appears on the left side of the screen, press the cursor button until the line disappears and press the "SET" button. (Unless the white line is on the screen, adjustment is not necessary. Simply press the "SET" button.)
5	CDS LEVEL (IRIS close)	–	EE, "PRESET No.03"	TERMINAL PCB P128 ⑬ pin (IRIS LEVEL)	VR301	Connect a digital DC voltmeter to the TERMINAL PCB P128 ⑬ pin and adjust VR301 so that the voltage is DC 0.45±0.05V. Then press the "SET" button. (Pressing the "SET" button will skip "PRESET No.04 and No.05" and proceed to "PRESET No.06" automatically.)

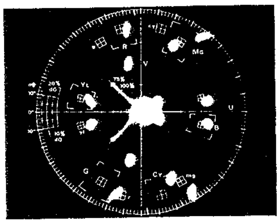
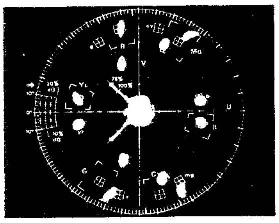
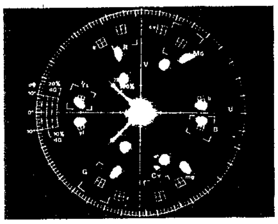
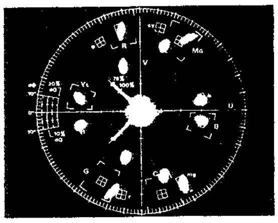
Step	Adjustment item	Input signal or test tape	Mode	Test point	Adjustment part	Result and remarks
6	IRIS CONTROL VOLTAGE (IRIS close)	-	EE, "PRESET No.04"	-	-	No operation.
7	IRIS LEVEL (IRIS open)	-	EE, "PRESET No.05"	-	-	No operation.
8	CDS LEVEL	GREY SCALE CHART	EE, "PRESET No.06"	TERMINAL PCB P128 ⑦ pin (CDS 4)	∧ or ∨ button	 Connect an oscilloscope to the TERMINAL PCB P128 ⑦ pin. Adjust one of the cursor buttons so that the CDS level becomes 500 mVp-p. Then press the "SET" button.
9	IRIS LEVEL CHECK	GREY SCALE CHART	EE, "PRESET No.05"	TERMINAL PCB P128 ⑬ pin (IRIS LEVEL)	-	Connect an oscilloscope to the TERMINAL PCB P128 ⑬ pin. Press the < button and go back to "PRESET No.05". Adjust the camera zoom so that the stair step waveform part is 40 μs width. Confirm that the IRIS LEVEL is DC 4.2 ± 0.2 V.
10	Y. AGC LEVEL	GRAY SCALE CHART	EE, "PRESET No.07"	TERMINAL PCB P128 ⑩ pin (AGC OUT)	∧ or ∨ button	 Connect an oscilloscope to the TERMINAL PCB P128 ⑩ pin. Adjust one of the cursor buttons so that the Y. AGC LEVEL is 550 mVp-p. Then press the SET button.
11	V sub	Spotlight	EE, "PRESET No.08"	TERMINAL PCB P128 ⑦ pin (CDS 4)	∧ or ∨ button	 Connect an oscilloscope to the TERMINAL PCB P128 ⑦ pin and shoot a very blight object, like a spotlight. Adjust one of the cursor buttons so that the voltage of the shoulder part of the waveform is 1.25 V and the smear is minimum. Then press the "SET" button.

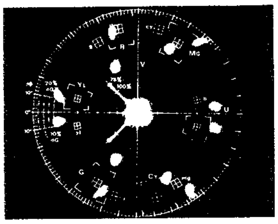
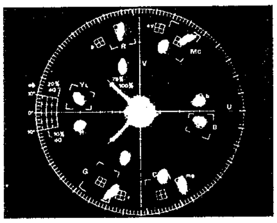
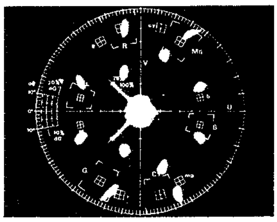
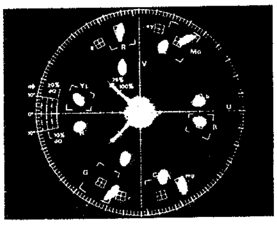
Step	Adjustment item	Input signal or test tape	Mode	Test point	Adjustment part	Result and remarks
12	Cyan 1 GAIN	GRAY SCALE CHART	EE, "PRESET No.09"	TERMINAL PCB P128 ④ pin (CY) & ⑥ pin (CY 1)	∧ or ∨ button	 INCORRECT  CORRECT Connect CH-1 of an oscilloscope to the TERMINAL PCB P128 ④ pin (CY) & CH-2 to ⑥ pin (CY 1). Set the oscilloscope's display mode to "ADD" and CH-2 polarity to "INVERTED". Press one of the cursor buttons so that "a" level is equal to "b" level between each adjacent H period. Then press the "SET" button.
13	Yellow 1 GAIN	GRAY SCALE CHART	EE, "PRESET No.0A"	VIDEO OUT & TERMINAL PCB P128 ③ pin (YE), ⑤ pin (YE 1)	∧ or ∨ button	 INCORRECT  CORRECT Connect a vector scope to the VIDEO OUT and press the cursor button until the vibration of the center part is minimum. Then connect CH-1 of an oscilloscope to the TERMINAL PCB P128 ③ pin (YE) and CH-2 to ⑤ pin (YE 1). Set the oscilloscope's display mode to "ADD" and CH-2 to "INVERTED". Confirm that the "a" level is equal to "b" level the same as in step 12, in each adjacent H period. Then press the "SET" button.

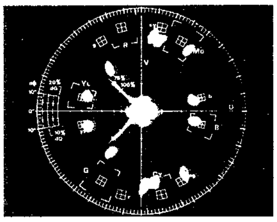
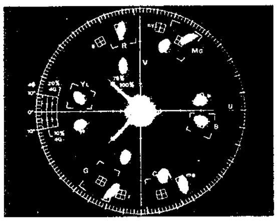
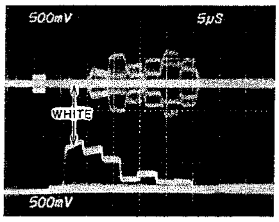
Step	Adjustment item	Input signal or test tape	Mode	Test point	Adjustment part	Result and remarks
14	R-Y CARRIER BALANCE	–	EE, "PRESET No.0B"	VIDEO OUT	∧ or ∨ button	 INCORRECT  CORRECT Connect a vector scope to VIDEO OUT. Press the cursor button so that the two separated spots become one spot and are positioned in the center of the scale (will move up and down). Then press the "SET" button.
15	B-Y CARRIER BALANCE	–	EE, "PRESET No. 0C"	VIDEO OUT	∧ or ∨ button	 INCORRECT  CORRECT Connect a vector scope to VIDEO OUT. Press the cursor button so that the center spot is positioned in the center of the scale (will move left and right). Then press the "SET" button.

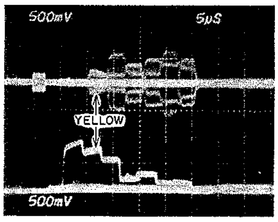
Step	Adjustment item	Input signal or test tape	Mode	Test point	Adjustment part	Result and remarks
16	BURST PHASE	COLOUR BAR CHART	EE, "PRESET No.0D"	VIDEO OUT	∧ or ∨ button	 INCORRECT  CORRECT Connect a vector scope to VIDEO OUT and mount a C-9 filter on the lens. Press the cursor button so that the correct burst angle is obtained. Press the "SET" button.
17	BURST LEVEL	COLOUR BAR CHART	EE, "PRESET No. 0E"	VIDEO OUT & TERMINAL PCB P128 ⑭ pin (C. OUT)	∧ or ∨ button	 Connect an oscilloscope to the TERMINAL PCB P128 ⑭ pin (C.OUT) and mount a C-9 filter on the lens. Press the cursor button so that the burst level is 240 mVp-p as shown. Then press the "SET" button.  **Note:** Connect a vector scope to the VIDEO OUT and set the vector scope gain so that the burst signal level is exactly on the 75 % scale. Proceed the adjustment with this setting hereafter.

Step	Adjustment item	Input signal or test tape	Mode	Test point	Adjustment part	Result and remarks
18	HUE	COLOUR BAR CHART	EE, "PRESET No. 0F"	VIDEO OUT	∧ or ∨ button	 INCORRECT  CORRECT Connect a vector scope to VIDEO OUT and mount a C-9 filter on the lens. Press the cursor button so that the colour's spots on the screen are as near as possible in the correct positions. Then press the "SET" button.
19	R-Y WHITE BALANCE (4500 °K)	COLOUR BAR CHART	EE, "PRESET No. 10"	VIDEO OUT	∧ or ∨ button	 INCORRECT  CORRECT Connect a vector scope to VIDEO OUT and mount a C-9 filter (4500 °K colour temperature adjustment) on the lens. Press the cursor button so that the colour's spots on the screen are as near as possible in the correct positions (will move up or down). Then press the "SET" button.

Step	Adjustment item	Input signal or test tape	Mode	Test point	Adjustment part	Result and remarks
20	B-Y WHITE BALANCE (4500 °K)	COLOUR BAR CHART	EE, "PRESET No.11"	VIDEO OUT	∧ or ∨ button	 INCORRECT  CORRECT Connect a vector scope to VIDEO OUT and mount a C-9 filter on the lens. Press the cursor button so that the colour's spots on the screen are as near as possible in the correct positions (will move left or right). Then press the "SET" button.
21	R-Y LEVEL (4500 °K)	COLOUR BAR CHART	EE, "PRESET No.12"	VIDEO OUT	∧ or ∨ button	 INCORRECT  CORRECT Connect a vector scope to VIDEO OUT and mount a C-9 filter on the lens. Press the cursor button so that the red spot is in the correct position. Press the "SET" button.

Step	Adjustment item	Input signal or test tape	Mode	Test point	Adjustment part	Result and remarks
22	B-Y LEVEL (4500 °K)	COLOUR BAR CHART	EE, "PRESET No.13"	VIDEO OUT	∧ or ∨ button	 INCORRECT  CORRECT Connect a vector scope to VIDEO OUT and mount a C-9 filter on the lens. Press the cursor button so that the blue spot is in the correct position. Press the "SET" button.
23	R-Y MATRIX (4500 °K)	COLOUR BAR CHART	EE, "PRESET No.14"	VIDEO OUT	∧ or ∨ button	 INCORRECT  CORRECT Connect a vector scope to VIDEO OUT and mount a C-9 filter on the lens. Press the cursor button so that the blue spot is in the correct position. Press the "SET" button.

Step	Adjustment item	Input signal or test tape	Mode	Test point	Adjustment part	Result and remarks
24	B-Y MATRIX (4500 °K)	COLOUR BAR CHART	EE, "PRESET No-15"	VIDEO OUT	∧ or ∨ button	 INCORRECT  CORRECT Connect a vector scope to VIDEO OUT and mount a C-9 filter on the lens. Press the cursor button so that the red spot is in the correct position. Press the "SET" button.
25	HIGH CLIP	COLOUR BAR CHART	EE, "PRESET No.16"	TERMINAL PCB P128 ⑦ pin (CDS4) & ⑭ pin (C.OUT)	∧ or ∨ button	 Connect CH-1 of an oscilloscope to the TERMINAL PCB P128 ⑦ pin (CDS4), CH-2 to ⑭ pin (C.OUT) and mount a C-9 filter on the lens. Zooming the lens to the wide position so that the yellow part level of the CDS4 waveform is 800 mV. While observing the C.OUT waveform, press the cursor button until the carrier of the white part just disappears. Press the "SET" button when the adjustment is performed satisfactorily.

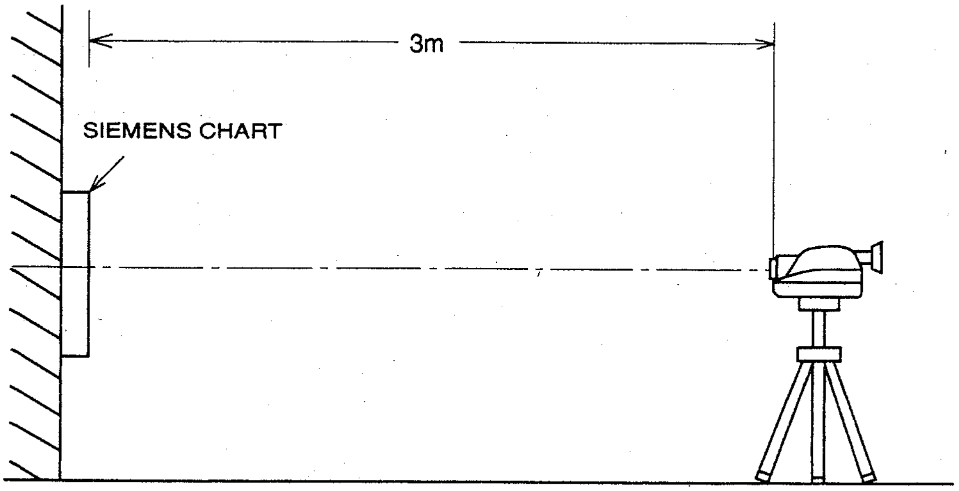
Step	Adjustment item	Input signal or test tape	Mode	Test point	Adjustment part	Result and remarks
26	CHROMA CLIP	COLOUR BAR CHART	EE, "PRESET No.17"	TERMINAL PCB P128 ⑦ pin (CDS4) & ⑭ pin (C.OUT)	∧ or ∨ button	 Keep the zoom lens and oscilloscope in the same condition as 25). Press the cursor button until the yellow part level starts reducing. Then zoom the lens to the telephoto position and confirm there is no carrier on the white part of the waveform. If there is no carrier, press the "SET" button. In case the carrier appears at the white part, press the cursor button again until the carrier just disappears and yellow part level starts reducing. Repeat the same procedure until the carrier does not appear on the white part when the zoom lens is moved. Press the "SET" button when the adjustment is performed satisfactory.
27	R-Y WHITE BALANCE (7200 °K)	COLOUR BAR CHART	EE, "PRESET No.18"	VIDEO OUT	∧ or ∨ button	Connect a vector scope to VIDEO OUT and mount a C-16 filter (7200 °K colour temperature adjustment) on the lens. Press the cursor button so that the colour's spots on the screen are as near as possible in the correct positions (will move up or down). Then press the "SET" button.
28	B-Y WHITE BALANCE (7200 °K)	COLOUR BAR CHART	EE, "PRESET No.19"	VIDEO OUT	∧ or ∨ button	Connect a vector scope to the VIDEO OUT and mount a C-16 filter on the lens. Press the cursor button so that the colour's spots on the screen are as near as possible in the correct positions (will move left or right). Then press the "SET" button.
29	R-Y LEVEL (7200 °K)	COLOUR BAR CHART	EE, "PRESET No.1A"	VIDEO OUT	∧ or ∨ button	Connect a vector scope to VIDEO OUT and mount a C-16 filter on the lens. Press the cursor button so that the red spot is in the correct position. Press the "SET" button.
30	B-Y LEVEL (7200 °K)	COLOUR BAR CHART	EE, "PRESET No.1B"	VIDEO OUT	∧ or ∨ button	Connect a vector scope to VIDEO OUT and mount a C-16 filter on the lens. Press the cursor button so that the blue spot is in the correct position. Press the "SET" button.
31	R-Y MATRIX (7200 °K)	COLOUR BAR CHART	EE, "PRESET No.1C"	VIDEO OUT	∧ or ∨ button	Connect a vector scope to VIDEO OUT and mount a C-16 filter on the lens. Press the cursor button so that the blue spot is in the correct position. Press the "SET" button.

Step	Adjustment item	Input signal or test tape	Mode	Test point	Adjustment part	Result and remarks
32	B-Y MATRIX (7200 °K)	COLOUR BAR CHART	EE, “PRESET No-1D”	VIDEO OUT	∧ or ∨ button	Connect a vector scope to VIDEO OUT and mount a C-16 filter on the lens. Press the cursor button so that the red spot is in the correct position. Press the “SET” button.
33	R-Y WHITE BALANCE (3200 °K)	COLOUR BAR CHART	EE, “PRESET No.1E”	VIDEO OUT	∧ or ∨ button	Connect a vector scope to VIDEO OUT and mount a C-1 filter on the lens. Press the cursor button so that the colour's spots on the screen are as near as possible in the correct positions (will move up or down). Then press the “SET” button.
34	B-Y WHITE BALANCE (3200 °K)	COLOUR BAR CHART	EE, “PRESET No.1F”	VIDEO OUT	∧ or ∨ button	Connect a vector scope to VIDEO OUT and mount a C-1 filter on the lens. Press the cursor button so that the colour's spots on the screen are as near as possible in the correct positions (will move left or right). Then press the “SET” button.
35	R-Y LEVEL (3200 °K)	COLOUR BAR CHART	EE, “PRESET No.20”	VIDEO OUT	∧ or ∨ button	Connect a vector scope to VIDEO OUT and mount a C-1 filter on the lens. Press the cursor button so that the red spot is in the correct position. Press the “SET” button.
36	B-Y LEVEL (3200 °K)	COLOUR BAR CHART	EE, “PRESET No.21”	VIDEO OUT	∧ or ∨ button	Connect a vector scope to VIDEO OUT and mount a C-1 filter on the lens. Press the cursor button so that the blue spot is in the correct position. Press the “SET” button.
37	R-Y MATRIX (3200 °K)	COLOUR BAR CHART	EE, “PRESET No.22”	VIDEO OUT	∧ or ∨ button	Connect a vector scope to VIDEO OUT and mount a C-1 filter on the lens. Press the cursor button so that the blue spot is in the correct position. Press the “SET” button.
38	B-Y MATRIX (3200 °K)	COLOUR BAR CHART	EE, “PRESET No-23”	VIDEO OUT	∧ or ∨ button	Connect a vector scope to VIDEO OUT and mount a C-1 filter on the lens. Press the cursor button so that the red spot is in the correct position. Press the “SET” button.
39	R-Y WHITE BALANCE (FL LAMP)	COLOUR BAR CHART	EE, “PRESET No.24”	VIDEO OUT	∧ or ∨ button	Connect a vector scope to VIDEO OUT and mount a C-8 filter on the lens. Press the cursor button so that the colour's spots on the screen are as near as possible in the correct positions (will move up or down). Then press the “SET” button.
40	B-Y WHITE BALANCE (FL LAMP)	COLOUR BAR CHART	EE, “PRESET No.25”	VIDEO OUT	∧ or ∨ button	Connect a vector scope to VIDEO OUT and mount a C-8 filter on the lens. Press the cursor button so that the colour's spots on the screen are as near as possible in the correct positions (will move left or right). Then press the “SET” button.

Step	Adjustment item	Input signal or test tape	Mode	Test point	Adjustment part	Result and remarks
41	R-Y LEVEL (FL LAMP)	COLOUR BAR CHART	EE, “PRESET No.26”	VIDEO OUT	∧ or ∨ button	Connect a vector scope to VIDEO OUT and mount a C-8 filter on the lens. Press the cursor button so that the red spot is in the correct position. Press the “SET” button.
42	B-Y LEVEL (FL LAMP)	COLOUR BAR CHART	EE, “PRESET No.27”	VIDEO OUT	∧ or ∨ button	Connect a vector scope to VIDEO OUT and mount a C-8 filter on the lens. Press the cursor button so that the blue spot is in the correct position. Press the “SET” button.
43	R-Y MATRIX (FL LAMP)	COLOUR BAR CHART	EE, “PRESET No.28”	VIDEO OUT	∧ or ∨ button	Connect a vector scope to VIDEO OUT and mount a C-8 filter on the lens. Press the cursor button so that the blue spot is in the correct position. Press the “SET”button.
44	B-Y MATRIX (FL LAMP)	COLOUR BAR CHART	EE, “PRESET No-29”	VIDEO OUT	∧ or ∨ button	Connect a vector scope to VIDEO OUT and mount a C-8 filter on the lens. Press the cursor button so that the red spot is in the correct position. Press the “SET” button.
45	AUTO W. BALANCE (4600 °K)	GRAY SCALE CHART	EE, “PRESET No-2A”	–	–	Mount a C-8 filter on the lens and press the “SET” button.
46	AUTO W. BALANCE CALCUL-ATION	–	EE, “PRESET No-2B”	–	–	Press the “SET” button.

5-3-2. AUTO FOCUS TRACKING ADJUSTMENT

Setting for the CAMERA AUTO FOCUS TRACKING adjustment



- Pattern : Siemens chart
- Distance between the pattern and camera lens : exactly 3 m. (If the distance is not accurate, proper adjustment can not be performed.)
- TEST mode : "TEST mode 82" (refer to the information section on page 5.)
- Light : Center of the chart is not saturated when the zoom is in the full wide position as "TEST mode 82" will set the IRIS fully open.

Note:

- The purpose of this adjustment is when zooming from "wide" to "telephoto" (or vice versa), the focus lens follows the zoom lens motion and trys to keep the focus in the best position. And also sets the zoom lens's telephoto and wide end positions within range, not losing the focus. These control data will be kept in the EEP-ROM IC.
- Unless it is absolutely necessary, do not perform this adjustment as it is complicated and will take too much time.
- In case the auto focus tracking adjustment is necessary:
  1. The LENS BLOCK or ZOOM ENCODER PCB (on the LENS BLOCK) is replaced.
  2. The CCD element or CAMERA (1) PCB is replaced.
  3. The EEP-ROM IC (IC310), micro processing IC (IC309) or OPE-AMP IC (IC304 or 305) in the CAMERA (1) PCB is replaced.

1) Mount a unit on a tripod and set it so that the camera lens is exactly 3 m away from the siemens chart.
2) Engage "TEST mode 82", an octopus mark appears on the screen. Then press the "DISPLAY" button. A number of numeral rows appear on the screen. The numbers necessary on this adjustment are shown below. Confirm that the mode number is now "00".

```
                               82
         A                                     B               C
   * *  [* *]   * *   * *   * *   [* *    * *]  [* *]
   * *   * *    * *   * *   * *    * *    * *    * *
 D[* *] [* *]E  * *   * *   * *    * *   [* *    * *]F
   * *   * *    * *   * *   * *    * *    * *    * *
```

A → T/W 1 (A/D) data : Use this zoom lens position data in step 3) or 7).

B → FOCUS CONDITION data : This value becomes maximum when the focus is in the best position during the adjustment. Use this value to find the best position when adjusting the focus manually with the "+" or "–" buttons.

C → MODE number : Present mode number is indicated during the adjustment.

D → T/W 2 (CAL) data : Use this value when comparing the data in step 12), in the telephoto position.

E → T/W 1 (CAL) data : Use this value when comparing the data in step 12), in the wide position.

F → FP number : Focus lens position data. Use this data in steps 5), 6), 8) to 10) and 12).

3) Set the zoom lens until the T/W 1 data becomes "61" by pressing the ∧or ∨buttons while the unit is in "mode No.00".

4) Press the ">" button once and proceed to "mode No.01"
Then press the "–" (or "+") button on the viewfinder until the picture on the screen is just in focus. (Pressing the "FOCUS" button once instead of the "–" or "+" button to set the AUTO FOCUS ON, is much easier for finding the best focus position.)

5) Press the "SET" button. The mode number turns to "02". Then press the "<" cursor button once to return to "mode No.01" and confirm that the FP (focus position) number is "00 00".

6) Set the focus lens by pressing the "+" (or "–") button until the FP number becomes "FE EC". Then press the zoom "T" button (or ∧ button) until the picture on the screen is just in focus in the telephoto position.
(Never set the unit to the auto focus mode in this step.)
Now read the T/W 1 data on the screen, and calculate the value of the T/W 1 data minus 34. If the value is 00, proceed to step 9). In case the value is not "00", proceed to step 7).

7) Return to "mode No.00" by pressing the "<" button. Set the new T/W 1 data. For example, if the value is +3, add 3 to the original T/W 1 data "61". Therefore the result becomes 64. So, set the T/W 1 data to "64" by pressing the "∨" button. Then repeat steps 4) to 5) and proceed to step 8).

8) Set the focus lens by pressing the "+" (or "–") button until the FP number becomes "FE EC". Then press the zoom "T" (or "∧" button) until the picture on the screen is just in focus in the telephoto position.
(Never set the unit to the auto focus mode in this step.)

9) Press the "SET" button twice. Then return to "mode No.01" and press the "+" (or "–") button until the FP number becomes "FF BB". Press the "SET" button once then press the ">" button. Now Confirm that the mode number is "03" and FP number is "00 00".

10) Move the zoom lens to the wide direction by pressing the "W" zoom (or "∨") button until the picture is just in focus. Then press the "SET" button. The focus lens starts moving until the sensor position is detected automatically. A few second later, the mode number will turn to "04". Now Confirm the FP number shown in the screen. If the FP number is between "96" to "FA", it means the adjustment is satisfactory. Press the "SET" button and conclude the adjustment. The mode number turns to "05" automatically.
If the FP number is not between "96" to "FA", repeat the adjustment from steps 3) to 10) until the result is satisfactory.

11) Press the "FOCUS" button and set the unit to the "auto focus mode". Confirm that the focus is following satisfactorily when zooming the lens from wide to telephoto or vice versa. (Press only the zooming "T" or "W" button in this step. Never press the "∧" or "∨" buttons as they will not detect both ends of the tracking range.)

12) Confirm whether the adjustment is perfect or not, by referring to the reference focus lens tracking data shown on next page. Set the zoom to the full wide position and read the T/W 1 (CAL) data and FP number data on the screen and compare with the reference data in the T/W 1 (CAL) list. If the actual data is within ± 3 of the reference data, the result is almost satisfactory. Then Set the zoom to the full telephoto position and read the T/W 2 (CAL) data and FP number data on the screen and compare it with the reference data in the T/W 2 (CAL) list. If the actual data is within ± 3 of the reference data, the result is almost satisfactory. Pick up a few points near zoom wide end and telephoto end and repeat the same procedure. If each comparison result is within ± 3 of the respective reference data, it means adjustment is satisfactory. Disengage "TEST MODE 82" by pressing the camera reset switch (the negative side of the battery terminal pin) located on the rear panel or disconnecting the power supply. In case the comparison value exceeds ± 3, repeat the adjustment from the steps 3) to 11) until the result is satisfactory.

FP number list when the distance between the camera lens and chart is 3 m.

T/W 1 (CAL) LIST (WIDE POSITION)

	FP number							
T/W 1 (CAL)	0/8	1/9	2/A	3/B	4/C	5/D	6/E	7/F
00 ~ 07	0001	0004	0007	000A	000D	000F	0012	0014
08 ~ 0F	0017	001A	001C	001F	0021	0024	0026	0029
10 ~ 17	002B	002E	0030	0033	0035	0038	003B	003D
18 ~ 1F	0040	0043	0045	0048	004B	004D	0050	0053
20 ~ 27	0055	0058	005B	005E	0060	0063	0066	0069
28 ~ 2F	006B	006E	0071	0074	0077	0079	007C	007F
30 ~ 37	0082	0085	0088	008B	008E	0090	0093	0096
38 ~ 3F	0099	009C	009F	00A2	00A5	00A8	00AB	00AE
40 ~ 47	00B1	00B4	00B7	00BA	00BD	00C0	00C3	00C5
48 ~ 4F	00C8	00CB	00CE	00D1	00D4	00D7	00DA	00DD
50 ~ 57	00E0	00E3	00E6	00E9	00EC	00EF	00F2	00F5
58 ~ 5F	00F7	00FA	00FD	0100	0103	0106	0109	010B
60 ~ 67	010E	0111	0114	0116	0119	011C	011E	0121
68 ~ 6F	0124	0126	0129	012B	012E	0130	0132	0135
70 ~ 77	0137	0139	013C	013E	0140	0142	0144	0146
78 ~ 7F	0148	0149	014B	014D	014F	0150	0151	0153
80 ~ 87	0154	0155	0156	0157	0158	0159	0159	015A
88 ~ 8F	015A	015A	015A	015A	015A	0159	0159	0158
90 ~ 96	0158	0157	0156	0156	0156	0156	0156	

T/W 2 (CAL) LIST (TELEPHOTO POSITION)

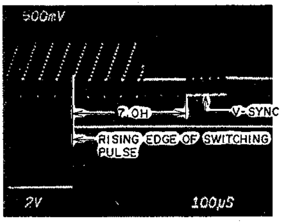
	FP NUMBER							
T/W 2 (CAL)	0/8	1/9	2/A	3/B	4/C	5/D	6/E	7/F
00 ~ 07	0046	0049	004C	0050	0054	0058	005C	0060
08 ~ 0F	0064	0068	006B	006F	0073	0077	007A	007E
10 ~ 17	0081	0085	0088	008C	008F	0092	0096	0099
18 ~ 1F	009C	009F	00A2	00A5	00A8	00AB	00AE	00B1
20 ~ 27	00B4	00B7	00BA	00BD	00C0	00C2	00C5	00C8
28 ~ 2F	00CA	00CD	00D0	00D2	00D5	00D7	00DA	00DC
30 ~ 37	00DE	00E1	00E3	00E5	00E8	00EA	00EC	00EE
38 ~ 3F	00F0	00F2	00F5	00F7	00F9	00FB	00FD	00FF
40 ~ 47	0100	0102	0104	0106	0108	010A	010B	010D
48 ~ 4F	010F	0110	0112	0114	0115	0117	0118	011A
50 ~ 57	011B	011D	011E	0120	0121	0122	0124	0125
58 ~ 5F	0127	0128	0129	012A	012C	012D	012E	012F
60 ~ 67	0130	0132	0133	0134	0135	0136	0137	0138
68 ~ 6F	0139	013A	013B	013C	013D	013E	013F	0140
70 ~ 77	0141	0141	0142	0143	0144	0145	0145	0146
78 ~ 7F	0147	0148	0148	0149	014A	014A	014B	014C
80 ~ 87	014C	014D	014D	014E	014F	014F	0150	0150
88 ~ 8F	0151	0151	0152	0152	0153	0153	0153	0154
90 ~ 97	0154	0155	0155	0155	0155	0155	0155	0155
98 ~ 9F	0155	0155	0155	0155	0155	0155	0155	0155
(FF)	0155	0155	0155					

5-4. FINAL ADJUSTMENT

Note : Set the unit to "TEST MODE 11" and press the "DISPLAY" button to display the MI-COM data on the screen (refer to the information section on page 5 before proceeding).

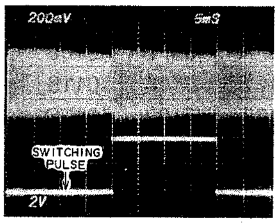
5-4-1. SWITCHING POINT ADJUSTMENT

1. Connect CH-1 of an oscilloscope to VIDEO OUT and CH-2 to the P27 ② pin (SWP) on the TERMINAL PCB.
2. Play back the reference tape TF-200RFS and press the "REC" button. Confirm that the switching point is positioned 7 H before the leading edge of the V-sync.



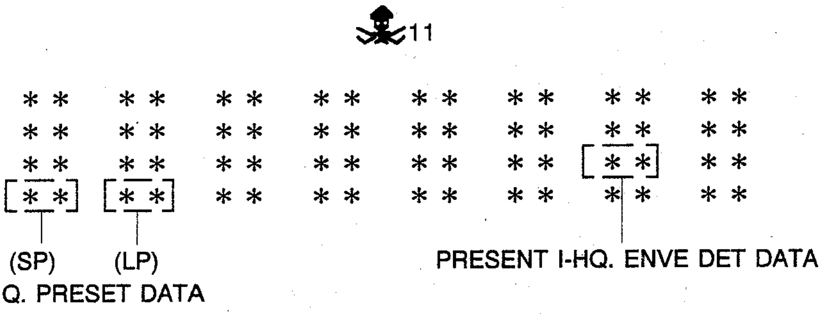
5-4-2. ATF TRACKING ADJUSTMENT

1. Connect CH-1 of an oscilloscope to the P27 ① pin (PB ENVE) and CH-2 to the P27 ② pin (SWP) for triggering on the TERMINAL PCB.
2. Play back the reference tape TF-200RFS and press the < or > button repeatedly until the RF envelope level becomes maximum and as flat as possible.
3. Press the "SHUTTER" button to memorize the best tracking point. Then press the "PLAY" button during playback to set the tracking center and confirm that the RF envelope is still at maximum.



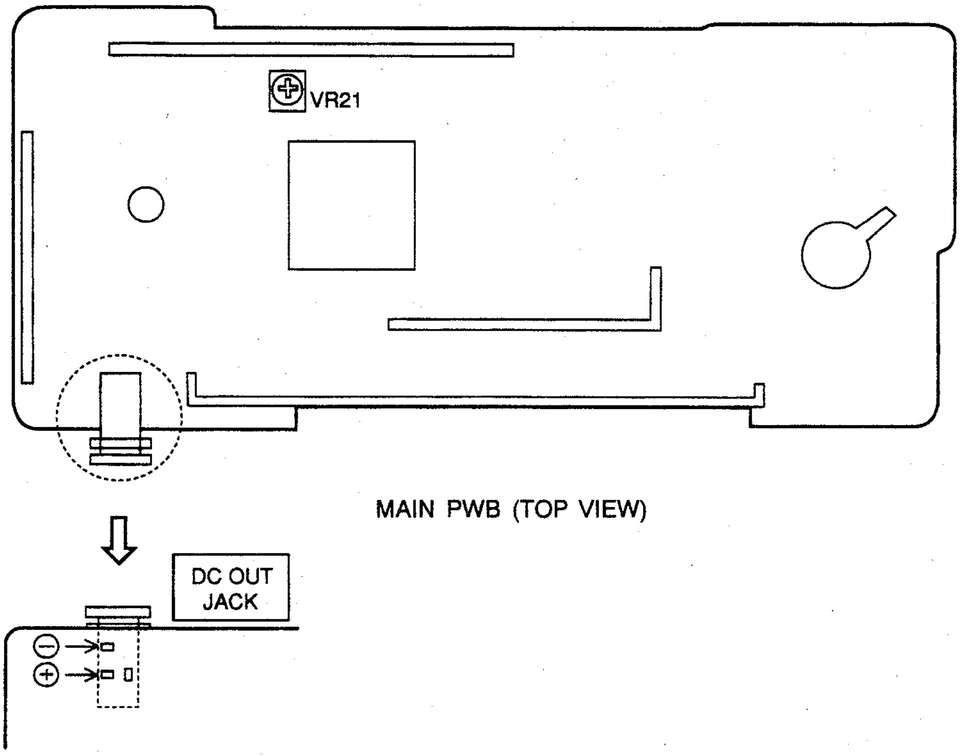
5-4-3. MEMORIZATION OF THE I-HQ REFERENCE VOLTAGE

1. Connect CH-1 of an oscilloscope to the P27 ① pin (PB ENVE) and CH-2 to the P27 ② pin (SWP) for triggering on the TERMINAL PCB.
2. Set the tape speed to the "SP" mode.
3. Make a recording on TEST TAPE TF-250AT (AT-751833J) and play it back.
4. Press the > or < button repeatedly until the envelope level becomes maximum and observe the I-HQ ENVE DET data. Then press the > button until the I-HQ ENVE data value becomes minus 4 from the maximum point of the data.



5. Press the "SET" button and confirm that the ENVE DET data is almost the same as I-HQ PRESET data.
6. Set the tape speed to the "LP" mode and repeat steps 3 to 5.
7. Change the TEST TAPE to SONY Hi8 MP60 (P6-60HMP) then repeat steps 2 to 6.

5-5.AC ADAPTOR (VA-300) DC OUT ADJUSTMENT



MAIN PWB (TOP VIEW)

(BOTTOM VIEW)

1. Connect the video camera to the AC ADAPTOR and turn the camera POWER ON.
2. Connect a DC digital voltmeter to the DC OUT jack on the MAIN PWB.
3. Adjust VR21 so that the output voltage is 7.0 V.

VI. PARTS LIST

ATTENTION

1. **When placing an order for parts, be sure to list Part No., Model No. and the description of eachpart. Otherwise, the non-delivery of the part or the delivery of a wrong part may result.**
2. **Please make sure that Part No. is correct when ordering. If not, a part different from the one you ordered may be delivered.**
3. **Since the parts shown in Parts List of Preliminary Service Manual may have been the subject of changes, please use this Parts List for all future reference.**

HOW TO USE THIS PARTS LIST

1. This Parts List lists those parts which are considered necessary for repairs. Other common parts, such as resistors and capacitors, are listed in the "Common List for Service Parts" from which these parts should be selected and stocked.
2. The Recommended Spare Parts List shows those parts in the Parts List which are considered particularly important for service.
3. Parts not shown in the Parts List and "Common List for Service Parts" will not in principle be supplied.
4. How to read the Parts List.

a) Mechanism Block

2. HEAD BASE BLOCK

Ref. No.	Part No.	Description
1	BH-T2023A320A	HEAD BASE BLOCK
2	HP-H2206A010A	HEAD R/P PR4-8FU C
3	ZS-477876	PAN20×03STL CMT
4	ZS-536488	BID20×08STL CMT
5	ZG-402895	SP CS ANGLE ADJUST

SP (Service Parts) Classification

This number corresponds with the individual parts index number in that figure.

b) PC Board

6. MAIN PC BOARD

Ref. No.	Part No.	Description
IC1	EI-324536	IC HD14049BP
IC2	EI-336801	IC MB8841-564M
C1A	EC-338399	C MMY V 223M 250AC [U,E,B,S]
C1B	EC-350949	C MMY V 223M 250DC [J]
C1C	EC-338397	C MMY V 223M 125AC [C,A]
X1	EI-318384	OSC X'TAL NC-18C

Symbols for primary destination

[A] :AAL (U.S.A)
[S] :SAA (Australia)
[B] :BEAB (England)
[U] :U/T (Universal Area)
[C] :CSA (Canada)
[E] :CEE (Europe)
[V] :VDE (Germany)
[J] :JPN (Japan)
[Y] :Custom Version

SP (Service Parts) Classification

These reference symbols correspond with component symbols in the Schematic Diagrams.

The available PC Board Blocks are listed separately.

5. When Part No. is known, Parts Index at end of Parts List can be used to locate where that part is shown in Parts List by its Reference No.listed at right of Part No.

WARNING

⚠ (*) INDICATES SAFETY CRITICAL COMPONENTS. FOR CONTINUED SAFETY, REPLACE SAFETY CRITICAL COMPONENTS ONLY WITH MANUFACTURE'S RECOMMENDED PARTS.

AVERTISSEMENT

⚠ (*) IL INDIQUE LES COMPOSANTS CRITIQUES DE SÉCURITÉ. POUR MAINTENIR LE DEGRÉ DE SÉCURITÉDE L'APPAREIL, NE REMPLACER QUE DES PIÉCES RECOMMANDEES PAR LÉ FABRICANT.

1. RECOMMENDED SPARE PARTS

We suggest you to stock the following Recommended Spare Part items listed below since they can cover most of the routine service.

Ref. No.	Part No.	Description
1	AV-B1045A010A	REMOCON BLK RC-M8 [PV-MS8]
2	AV-B1045A010B	REMOCON BLK RC-M8F [PV-MS8F]
3	BB-V3013A020A	MECHA DECK BLK PV-MS8
4	BH-V3013A400A	HEAD DRUM BLK PV-MS8 [INC. 2 TO 12]
5	BL-V3013A120A	TENSION BLK PV-MS8
6	BM-733286J	AF MOTOR ASSY
7	BM-408631J	MOTOR DCX-30 A1VCR
8	BM-410228J	MOTOR SCE-0301A
9	BM-733285J	PZ MOTOR ASSY
10	BO-410212J	Z00M LENS G38C
11	BT-733243J	TRANS ETS22K867A
12	BV-V3013A200A	EJECTOR BLK PV-MS8
13	BV-V3013A070A	LEADER (S) BLK PV-MS8
14	BV-V3013A080A	LEADER (T) BLK PV-MS8
15	BV-V3013A130A	LOADING MOTOR BLK PV-MS8
16	EA-404434J1	PCB FLEXIBLE AV JACK
17	EA-410230J	PCB FLEXIBLE CAMERA MAIN
18	EA-410233J	PCB FLEXIBLE OP MAIN
19	EC-408476J	C S-FIX CHIP T12 TZBX4P300AA
20	ED-410246J	D LED C.BR1102W RED TRT08E
21	ED-410589J	D LED C.CL180URCTS RED T08E
22	ED-410245J	D LED C.PG1102W GREEN TRT08E
23	ED-410215J	D LED GL453 INFRARED
24	ED-725278J	D LED SLR-34MC70F GREEN
25	ED-733249J	D LED SLR-34VR
26	ED-386025J	D SILICON CHIP DAN202U
27	ED-386057J	D SILICON CHIP DAP202U
28	ED-405339J	D SILICON CHIP DA115
29	ED-386024J	D SILICON CHIP DA204U
30	ED-408518J	D SILICON CHIP DA221
31	ED-386031J	D SILICON CHIP MA110-TW
32	ED-404449J	D SILICON CHIP MA132WK
33	ED-412061J	D SILICON CHIP MA147
34	ED-412092J	D SILICON CHIP MA717
35	ED-389579J	D SILICON CHIP RB400D
36	ED-389578J	D SILICON CHIP RB451F T106T08E
37	ED-733238J	D SILICON ERA15-01V
38	ED-385935J	D SILICON ERA22-04V3 T26 400/5
39	ED-371510	D SILICON ERA22-08Y F05
40	ED-380715J	D SILICON ERB83-004 40/1.7A
41	ED-733247J	D SILICON ERC81-004L7
42	ED-733246J	D SILICON ESAB92M-02
43	ED-732853J	D SILICON S1WB (A) 60
44	ED-733239J	D SILICON 1SS133T-77
45	ED-408555J	D SOHOTTKY CHIP U1GWJ49
46	ED-394636J	D VARACTOR CHIP 1SV200
47	ED-392394J	D ZENER CHIP MA3039-H TW
48	ED-404060J	D ZENER CHIP MA3075-L TW
49	ED-717552	D ZENER H MA4051-M
50	ED-733248J	D ZENER MTZJ5.6CT-77
51	ED-724036J	10NER MTZJ27D
52	*EF-410226J	FUSE C.SSFC 125V 3.15A T12E
53	*EF-404063J	FUSE ICP-F50 50V 2.0A
54	EF-733253J	FUSE THEERMO S3
55	EF-733244J	FUSE 250V 1A
56	EI-410216J	DETECTOR SPI-315-44 B.C
57	EI-410133J	IC AN1324NS
58	EI-410132J	IC AN1339S
59	EI-386023J	IC AN1358S-T1
60	EI-410134J	IC AN1393S
61	EI-403519J	IC AN2012SB
62	EI-403580J	IC AN2457SB
63	EI-718598	IC AN8005
64	EI-386011J	IC BA10358F
65	EI-410447J	IC BA401F
66	EI-408522J	IC CXA1204Q
67	EI-408571J	IC CXA1207AR
68	EI-408574J	IC CXA1208R
69	EI-408556J	IC CXA1488R
70	EI-408550J	IC CXD1172AM-T3
71	EI-408572J	IC CXL1506M
72	EI-733260J	IC FA5307S
73	EI-733262J	IC HA012612S
74	EI-412017J	IC HA118041MP-ER
75	EI-414543J	IC LA6324NM
76	EI-403658J	IC LB1830M
77	EI-408523J	IC LB1851M
78	EI-408504J	IC LC3664RML-10
79	EI-408503J	IC LV4101W
80	EI-408534J	IC MB3778PFV
81	EI-408552J1	IC MB636128 DAF02-FSY
82	EI-410451J	IC MC14053BFR2
83	EI-410131J	IC MC34074DR
84	EI-410137J	IC MC74HC02AFR
85	EI-410136J	IC MC74HC4002FR
86	EI-410135J	IC MC74HC4066FR
87	EI-410450J	IC MM1031XMR
88	EI-410446J	IC MM1114XF
89	EI-410448J	IC MM1117XFF
90	EI-410449J	IC MM1118XFF
91	EI-386021J	IC MN3824S-T1
92	EI-408506J	IC MN5181H
93	EI-401280J	IC MN73033XRA
94	EI-410463J	IC MSM7403MS-KR4
95	EI-408501J1	IC M37451M8-224FP EMZCMR2
96	EI-408540J2	IC M37471M8-225FP EMZOPP3
97	EI-403505J	IC M62352GP
98	EI-408612J1	IC NBC5800
99	EI-408541J	IC S-8420BF
100	EI-410138J	IC SC14S71FER
101	EI-410139J	IC SC7S04FER
102	EI-410169J	IC ST24C02AM1013TR
103	EI-408551J	IC TB6504F-EL
104	EI-410627J	IC UPD16506GR-8JG
105	EI-408383J	IC UPD6451AGT-819
106	EI-408520J3	IC UPD78136GF-027-3B9 EMZSYP4
107	EI-408561J	IC.AN2146FHP
108	EI-408557J	IC.CXA1536Q
109	EI-408516J	OSC CE CHIP CSAC10.2MTF001TR
110	EI-408543J	OSC CE CHIP FAR-C4CD04000-M20R
111	EI-408517J	OSC CE CHIP FAR-C4CD12000M02-R
112	EI-382875J	OSC CE CST4.00MGW 4MHZ
113	EI-410176J	OSC X,TAL C.CX49F 17734.475KHZ
114	EI-410174J	OSC X,TAL C.JXO-3F 25.750MHZ
115	EI-404438J	OSC X,TAL C.SMD-49 4.433619MHZ
116	EI-412114J	OSC X,TAL C.SX-1 12.000MHZ
117	EI-412113J	OSC X,TAL C.SX-1 5.85938MHZ
118	EI-368825M	OSC X'TAL C-002RX 32.768KHZ
119	EI-404405J	PLATE CCD MS8 PART [CCD IC]
120	ES-411983J2	OPERATION A MS8
121	ES-411984J2	OPERATION A MS8F FRENCH
122	ES-410234J	OPERATION H M4
123	ES-410236J	OPERATION TW
124	ES-410531J1	SW MICRO MPU10130MMB1
125	ES-408907J1	SW MICRO MPU20110MMB0
126	ES-408906J1	SW MICRO MPU30020MMB0
127	ES-733257J	SW MICRO MSS-8-2
128	ES-408905J1	SW MODE SELECT MMS00140ZZB1
129	ES-413067J	SW SLIDE SSSS81 01-03*
130	ES-403634J	SW TACT SKEYAB
131	ET-410468J	DETECTOR GP1U561
132	ET-733287J	DETECTOR ON-1004
133	ET-733252J	DETECTOR PC111YS
134	ET-386053J	TR CHIP DTA143EU
135	ET-403804J	TR CHIP DTC124EE
136	ET-403663J	TR CHIP DTC124TU
137	ET-732638J	TR CHIP DTC144EK
138	ET-410457J	TR CHIP UN911L
139	ET-408879J	TR CHIP UN9111
140	ET-408883J	TR CHIP UN9113
141	ET-408880J	TR CHIP UN9115
142	ET-404462J	TR CHIP UN9211
143	ET-408886J	TR CHIP UN9213
144	ET-408884J	TR CHIP UN9215
145	ET-386029J	TR CHIP 2SB1121 T
146	ET-410433J	TR CHIP 2SB1124 S,T,U
147	ET-410150J	TR CHIP 2SB1218A R,S
148	ET-408616J	TR CHIP 2SB1462 R.S
149	ET-386028J	TR CHIP 2SB815 B6 TAT08E
150	ET-386030J	TR CHIP 2SC4081 R,S
151	ET-403561J	TR CHIP 2SC4617 R
152	ET-405625J	TR CHIP 2SD1819A-TW R,S

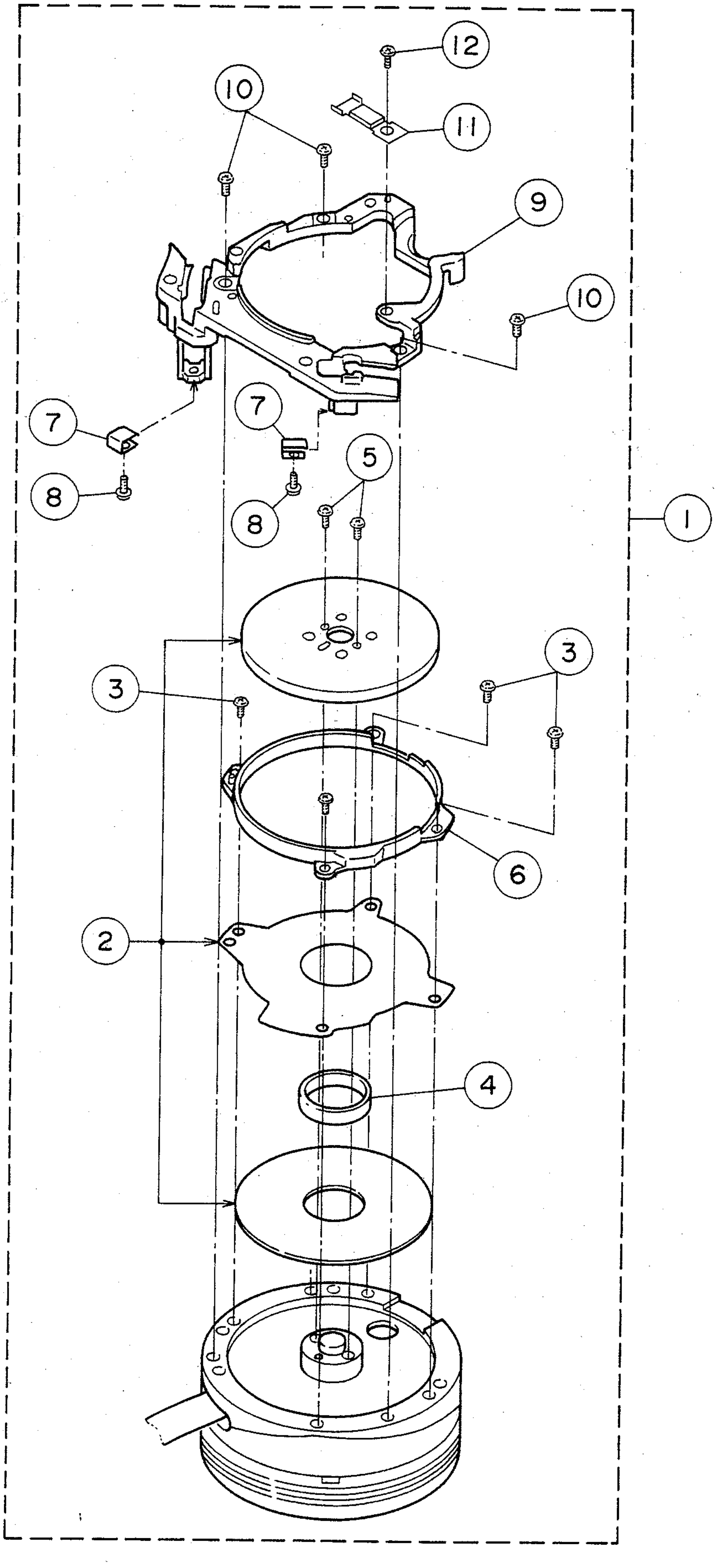
Ref. No.	Part No.	Description
153	ET-408617J	TR CHIP 2SD2216 R.S
154	ET-403671J	TR D-CHIP IMB6
155	ET-411693J	TR D-CHIP UMA9 TLT08E
156	ET-403559J	TR D-CHIP UMW1
157	ET-410453J	TR D-CHIP XP1113 TWT08E
158	ET-412297J	TR D-CHIP XP1211 TXT08E
159	ET-404495J	TR D-CHIP XP1213 TWT08E
160	ET-410456J	TR D-CHIP XP1401 TWT08E
161	ET-410238J	TR D-CHIP XP1501 TWT08E
162	ET-410459J	TR D-CHIP XP2501 TWT08E
163	ET-410454J	TR D-CHIP XP4113 TWT08E
164	ET-412101J	TR D-CHIP XP4115 TWT08E
165	ET-410458J	TR D-CHIP XP4213 TWT08E
166	ET-404454J	TR D-CHIP XP4312 TWT08E
167	ET-410239J	TR D-CHIP XP4401 TWT08E
168	ET-410240J	TR D-CHIP XP4501 TWT08E
169	ET-410241J	TR D-CHIP XP4601 TWT08E
170	ET-370634	TR DTA143XS
171	ET-382952J	TR DTC123ES
172	ET-410422J	TR FET CHIP 2SK1332-3 TLT08E
173	ET-733245J	TR FET 2SK951
174	ET-410217J	TR PHOTO PT4810F
175	ET-733251J	TR 2SB952
176	ET-389577J	TR.CHIP 2SD1328-TW S,T
177	ET-403851J	TR.CHIP 2SD2150 R,S
178	EY-411986J	MIC MS8
179	EY-411987J	MIC MS8F FRENCH
180	MB-406821J	BELT SYNCHRO
181	MI-406823J	IDLER PART
182	ML-406864J1	ARM REVIW PART
183	MP-V3013A100A	PINCH ROLLER BLK PV-MS8
184	MS-406871J	GUIDE REVIW
185	MS-409943J1	GUIDE (1)
186	MT-406801J	REEL (S) PART
187	MT-406813J	REEL (T) PART
188	MZ-406815J	GEAR BELT (1) PART
189	MZ-406818J	GEAR BELT (2) PART
190	MZ-406915J	GEAR CAM CENTER
191	MZ-406872J1	HOLDER TAPE GUIDE PART
192	MZ-V3013A160A	LEVER Z ROLLER BLK PV-MS8
193	MZ-406974J	PAD CREANER
194	VC-V3013A330A	E.V.F BLK PV-MS8
195	VC-V3013A330B	E.V.F BLK PV-MS8F
196	VC-733284J	IG METER ASSY
197	VC-733283J	ZOOM ENCORDER

2. HEAD DRUM BLOCK

Ref. No.	Part No.	Description
1	BH-V3013A400A	HEAD DRUM BLK PV-MS8 [INC. 2 TO 12]
2	BM-408631J	MOTOR DCX-30 A1VCR
3	ZS-377198	PAN17X04STL BZN PS1
4	MZ-407036J	COLLAR MOTOR
5	ZS-390437J	PAN14X03STL BZN PS1
6	HZ-407037J	HOLDER MOTOR
7	ZG-406976J	SP PLATE CHASSIS DRUM
8	ZS-409930J	PAN14X025STL BZN PS SPECIAL
9	MA-409235J	CHASSIS DRUM
10	ZS-377198	PAN17X04STL BZN PS1
11	VT-408632J	EARTH BRUSH PART EMZ
12	ZS-409994J	PAN14X016STL NI3 PS SPL

NOTE:
Parts will not be supplied if they are not listed in the parts list, even if they appear on the assembling illustrations with reference No.

HEAD DRUM BLOCK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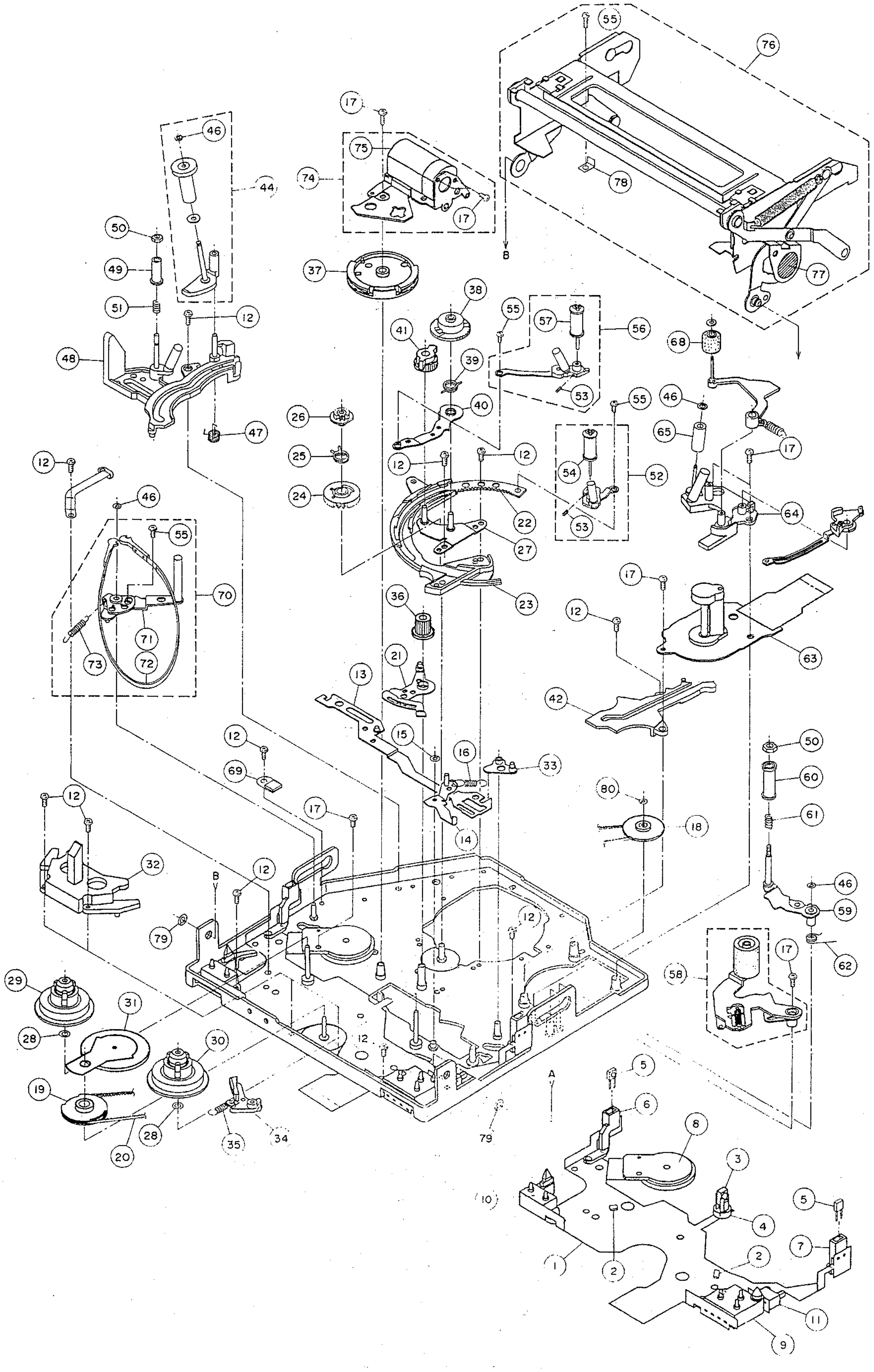
MECHA BLOCK



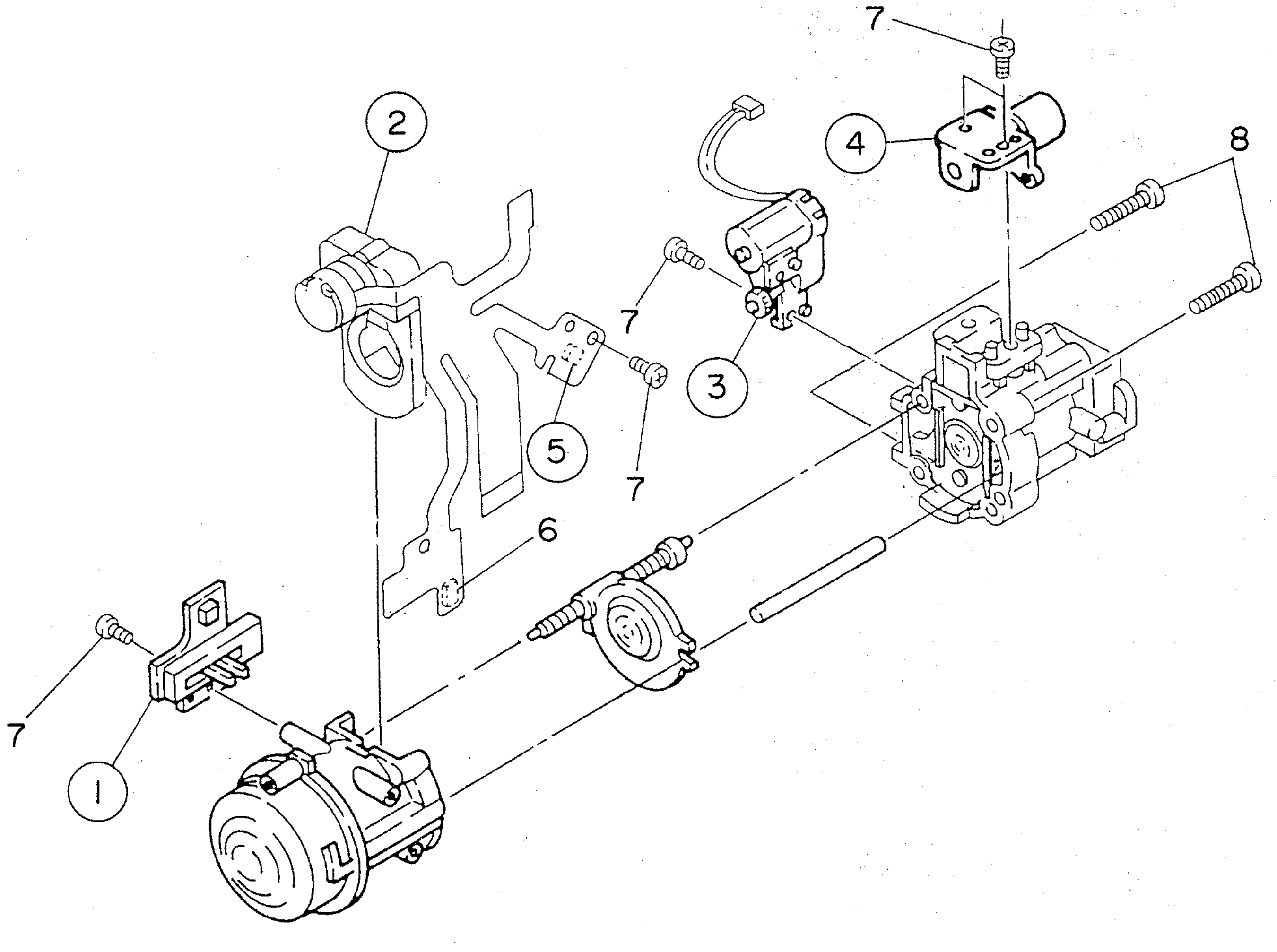
B
B
A

3. MECHA BLOCK

Ref. No.	Part No.	Description
1	EA-409984J	PC FLEX MACHA
2	EI-410216J	DETECTOR SPI-315-44 B.C
3	ED-410215J	D LED GL453 INFRARED
4	MZ-406914J	HOLDER LED
5	ET-410217J	TR PHOTO PT4810F
6	MZ-406911J	HOLDER SENSER (S)
7	MZ-406913J	HOLDER SENSER (T)
8	ES-408905J1	SW MODE SELECT MMS00140ZZB1
9	ES-408906J1	SW MICRO MPU30020MMB0
10	ES-408907J1	SW MICRO MPU20110MMB0
11	ES-410531J1	SW MICRO MPU10130MMB1
12	ZS-409993J	BT PAN17X035STL NI3 PS1
13	ML-406938J	PLATE SLIDER PART
14	ML-406930J	LEVER EJECT PART
15	ZW-390450J	SLIT W12X035X025 PSL
16	ZG-406933J	SP PULL LEVER EJECT
17	ZS-409930J	PAN14X025STL BZN PS SPECIAL
18	MZ-406815J	GEAR BELT (1) PART
19	MZ-406818J	GEAR BELT (2) PART
20	MB-406821J	BELT SYNCHRO
21	ML-406935J	LEVER CAM PINCH PART
22	MZ-406922J1	SLIDER RING
23	MZ-406926J1	HOLDER RING
24	MZ-406919J	GEAR LOADING (1)
25	ZG-406921J	SP TORSION LOADING
26	MZ-406920J	GEAR LOADING (2)
27	MZ-406927J	PLATE GEAR PART
28	ZW-412330J	PW12X036X040PSL
29	MT-406801J	REEL (S) PART
30	MT-406813J	REEL (T) PART
31	MI-406823J	IDLER PART
32	MZ-406887J	GUIDE BRAKE
33	ML-406944J	LEVER SLIDER PART
34	ML-406940J1	ARM BRAKE PART
35	ZG-406943J	SP PULL BRAKE
36	MZ-410902J	GEAR WHEEL (1) PART
37	MZ-406915J	GEAR CAM CENTER
38	MZ-406918J	GEAR TOGGLE
39	ZG-406925J	SP TORSION LEVER TOGGLE
40	ML-406924J1	LEVER TOGGLE
41	MZ-406917J	GEAR RELAY
42	MZ-406886J	GUIDE RAIL (T)
44	MZ-V3013A160A	LEVER Z ROLLER BLK PV-MS8
46	ZW-409988J	SLIT W10X024X025 PSL
47	ZG-406837J1	SP TORSION LEVER Z
48	MS-406881J1	GUIDE RAIL (S) PART
49	MS-409943J1	GUIDE (1)
50	ZS-409996J	N14BRS NI3 SPL
51	ZG-406885J	SP PUSH TAPE GUIDE
52	BV-V3013A070A	LEADER (S) BLK PV-MS8
53	ZS-409991J	6SET14X020SAE FP
54	VT-409944J	GUIDE ROLLER PART
55	ZS-412012J	PAN14X016STL CMT PS SPL
56	BV-V3013A080A	LEADER (T) BLK PV-MS8
57	MR-413413J	GUIDE ROLLER (2) PART
58	MP-V3013A100A	PINCH ROLLER BLK PV-MS8
59	ML-406864J1	ARM REVIW PART
60	MS-406871J	GUIDE REVIW
61	ZG-406869J	SP PUSH REVIW
62	ZG-406870J	SP TORSION REVIW
63	BM-410228J	MOTOR SCE-0301A
64	MZ-406872J1	HOLDER TAPE GUIDE PART
65	MR-406880J	ROLLER TAPE GUIDE
68	MZ-406974J	PAD CREANER
69	EX-404488J	DEW SENSOR EYH-S78D3
70	BL-V3013A120A	TENSION BLK PV-MS8
71	ML-406838J1	LEVER TENSION PART
72	MZ-406845J	SHEET TENSION PART
73	ZG-406849J1	SP PULL TENSION
74	BV-V3013A130A	LOADING MOTOR BLK PV-MS8
75	BM-410229J	MOTOR GM01
76	BV-V3013A200A	EJECTOR BLK PV-MS8
77	MZ-408878J	DUMPER Y18246-00800
78	MZ-411270J	STOPPER CASSETTE (S)
79	ZW-329299	RING E200SUP CMT
80	ZW-412011J	SLIT W08X030X025 PSL
81	BB-V3013A020A	MECHA DECK BLK PV-MS8

NOTE:
Parts will not be supplied if they are not listed in the parts list, even if they appear on the assembling illustrations with reference No.

LENS BLOCK



4. LENS BLOCK

Ref. No.	Part No.	Description
1	VC-733283J	ZOOM ENCORDER
2	VC-733284J	IG METER ASSY
3	BM-733285J	PZ MOTOR ASSY
4	BM-733286J	AF MOTOR ASSY
5	ET-733287J	DETECTOR ON-1004

NOTE:
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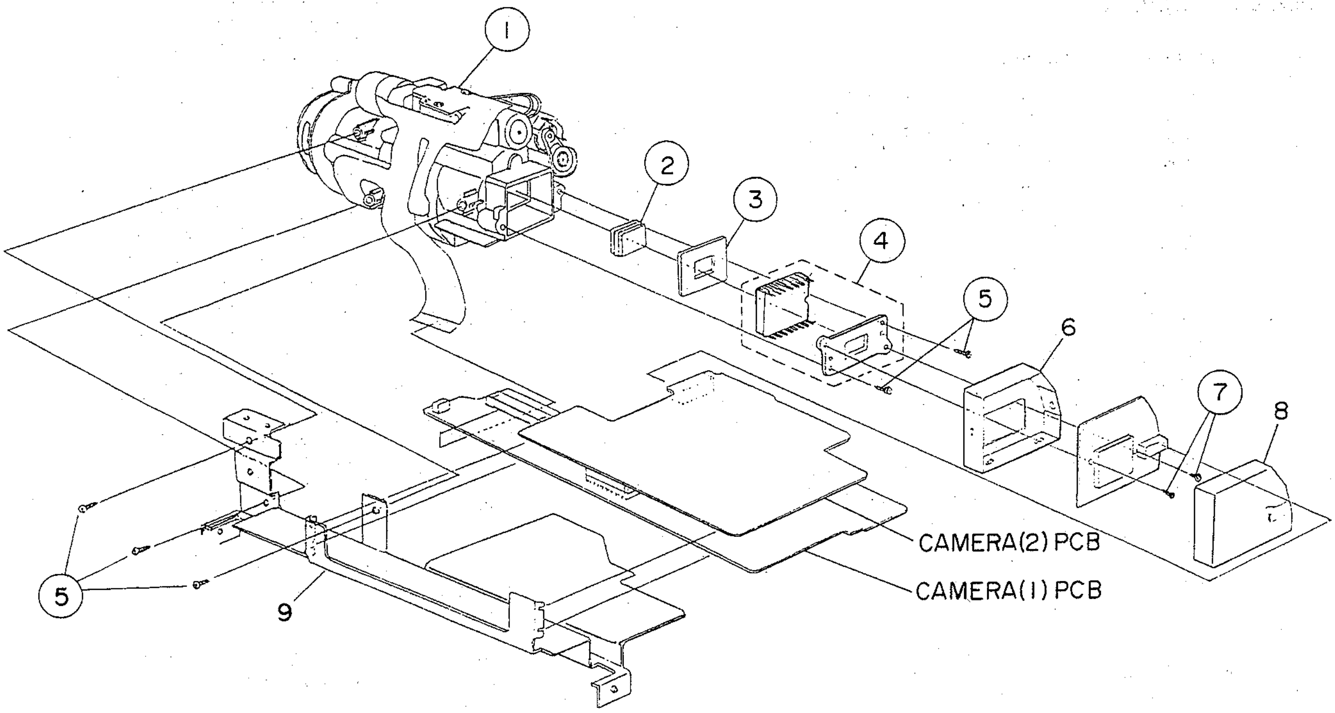
CAMERA BLOCK



5. CAMERA BLOCK

Ref. No.	Part No.	Description
1	BO-410212J	Z00M LENS G38C
2	VC-404402J	FILTER X'TAL SV-124A
3	MB-409759J	RUBBER SEAL
4	EI-404405J	PLATE CCD MS8 PART [CCD IC]
5	ZS-409970J	BT PAN17X04STL BZN PS1
7	ZS-374452	PAN17X03STL BZN PS1

NOTE:
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6. P.C BOARD BLOCK

Ref. No.	Part No.	Description
1	BA-733351J	PC MAIN BLK PV-MS8
2	BA-733352J	PC PRE AMP BLK PV-MS8
3	BA-733353J	PC MIC AMP BLK PV-MS8
4	BA-733354J	PC HI8 SUB BLK PV-MS8
5	BA-733355J	PC CAMERA (1) BLK PV-MS8
6	BA-733356J	PC CAMERA (2) BLK PV-MS8
7	BA-733357J	PC CCD BLK PV-MS8
8	BA-733358J	PC POWER SUPPLY BLK PV-MS8

7. MAIN P.C BOARD

Ref. No.	Part No.	Description
D1	ED-386031J	D SILICON CHIP MA110-TW
D2	ED-386031J	D SILICON CHIP MA110-TW
D3	ED-386057J	D SILICON CHIP DAP202U
D5	ED-386031J	D SILICON CHIP MA110-TW
D6	ED-386031J	D SILICON CHIP MA110-TW
D7	ED-386031J	D SILICON CHIP MA110-TW
D8	ED-386031J	D SILICON CHIP MA110-TW
D9	ED-412061J	D SILICON CHIP MA147
D10	ED-386031J	D SILICON CHIP MA110-TW
D11	ED-386031J	D SILICON CHIP MA110-TW
D12	ED-386025J	D SILICON CHIP DAN202U
D13	ED-386057J	D SILICON CHIP DAP202U
D14	ED-386025J	D SILICON CHIP DAN202U
D15	ED-386025J	D SILICON CHIP DAN202U
D16	ED-386031J	D SILICON CHIP MA110-TW
D18	ED-386031J	D SILICON CHIP MA110-TW
D19	ED-386031J	D SILICON CHIP MA110-TW
D20	ED-386031J	D SILICON CHIP MA110-TW
D21	ED-386031J	D SILICON CHIP MA110-TW
D22	ED-386031J	D SILICON CHIP MA110-TW
D23	ED-386057J	D SILICON CHIP DAP202U
D24	ED-386031J	D SILICON CHIP MA110-TW
D27	ED-386025J	D SILICON CHIP DAN202U
D28	ED-386031J	D SILICON CHIP MA110-TW
D29	ED-386031J	D SILICON CHIP MA110-TW
D30	ED-386031J	D SILICON CHIP MA110-TW
D301	ED-404060J	D ZENER CHIP MA3075-L TW
D302	ED-408518J	D SILICON CHIP DA221
D303	ED-408518J	D SILICON CHIP DA221
D501	ED-412092J	D SILICON CHIP MA717
D701	ED-386031J	D SILICON CHIP MA110-TW
D702	ED-404449J	D SILICON CHIP MA132WK
D703	ED-404449J	D SILICON CHIP MA132WK
D704	ED-404449J	D SILICON CHIP MA132WK
D705	ED-404449J	D SILICON CHIP MA132WK
D706	ED-404449J	D SILICON CHIP MA132WK
D707	ED-404449J	D SILICON CHIP MA132WK
D708	ED-404449J	D SILICON CHIP MA132WK
D709	ED-404449J	D SILICON CHIP MA132WK
FL1	EH-410440J	FILTER LC C.MXF5050L3R50T004
FL2	EH-410441J	FILTER LC C.MXF5050DR300T104
FL3	EH-410442J	FILTER LC C.MXF50500DR230T201
FL4	EH-410443J	FILTER LC C.MXF3535L5R00T011
FL201	EH-410178J	FILTER CE SFSL5.17MDB
FL202	EH-412324J	FILTER LC C.SYV-317N T12E
FL203	EH-410465J	FILTER LC C.SZV-355N T16E
FL501	EH-408559J	FILTER LC CHIP 4165 1.5MBPF
FL502	EH-408560J	FILTER LC CHIP 3786 1.7MBPF
IC1	EI-408571J	IC CXA1207AR
IC2	EI-410446J	IC MM1114XF
IC3	EI-410447J	IC BA401F
IC4	EI-408574J	IC CXA1208R
IC5	EI-410448J	IC MM1117XFF
IC6	EI-410449J	IC MM1118XFF
IC7	EI-410450J	IC MM1031XMR
IC8	EI-410451J	IC MC14053BFR2
IC9	EI-408383J	IC UPD6451AGT-819
IC301	EI-408522J	IC CXA1204Q
IC302	EI-414543J	IC LA6324NM
IC303	EI-408520J3	IC UPD78136GF-027-3B9 EMZSYP4
IC304	EI-403658J	IC LB1830M
IC305	EI-408612J1	IC NBC5800
IC306	EI-414543J	IC LA6324NM
IC307	EI-408523J	IC LB1851M
IC501	EI-408556J	IC CXA1488R
IC502	EI-408556J	IC CXA1488R
IC503	EI-408557J	IC.CXA1536Q
IC701	EI-408540J2	IC M37471M8-225FP EMZOPP3
IC702	EI-408541J	IC S-8420BF
J15	EJ-412028J	SOCKET C.52365-1890 18P
P5	EJ-408544J	PLUG C.52204-2490 24P
P13	EJ-404466J	PLUG C.53261-0590 5P
P17	EJ-408621J	PLUG C.52396-1290 12P
P27	EJ-403639J	PLUG C.53261-0390 3P
P201	EJ-408593J	PLUG C.CPB8618-0151 18P T24E
P202	EJ-411426J	PLUG C.CPB8614-01 14P
P307	EJ-404451J	PLUG C.52204-1090 10P
P308	EJ-412003J	PLUG C.52396-1890 18P
P309	EJ-412032J	PLUG C.53268-2290 22P
P312	EJ-408528J	PLUG C.52396-2390 23P
P501	EJ-403624J	PLUG C.53261-0490 4P
P710	EJ-408545J	PLUG C.52207-1290 12P
P711	EJ-408544J	PLUG C.52204-2490 24P
TR1	ET-410453J	TR D-CHIP XP1113 TWT08E
TR2	ET-408886J	TR CHIP UN9213
TR3	ET-408883J	TR CHIP UN9113
TR4	ET-408883J	TR CHIP UN9113
TR5	ET-410454J	TR D-CHIP XP4113 TWT08E
TR6	ET-404495J	TR D-CHIP XP1213 TWT08E
TR7	ET-404495J	TR D-CHIP XP1213 TWT08E
TR8	ET-404495J	TR D-CHIP XP1213 TWT08E
TR9	ET-408886J	TR CHIP UN9213
TR10	ET-410240J	TR D-CHIP XP4501 TWT08E
TR11	ET-404495J	TR D-CHIP XP1213 TWT08E
TR12	ET-408883J	TR CHIP UN9113
TR13	ET-408617J	TR CHIP 2SD2216 R.S
TR14	ET-410456J	TR D-CHIP XP1401 TWT08E
TR15	ET-408617J	TR CHIP 2SD2216 R.S
TR16	ET-410456J	TR D-CHIP XP1401 TWT08E
TR17	ET-408617J	TR CHIP 2SD2216 R.S
TR18	ET-408617J	TR CHIP 2SD2216 R.S
TR19	ET-408617J	TR CHIP 2SD2216 R.S
TR20	ET-410457J	TR CHIP UN911L
TR21	ET-408616J	TR CHIP 2SB1462 R.S
TR22	ET-410457J	TR CHIP UN911L
TR23	ET-410457J	TR CHIP UN911L
TR24	ET-410457J	TR CHIP UN911L
TR25	ET-408886J	TR CHIP UN9213
TR26	ET-404495J	TR D-CHIP XP1213 TWT08E
TR27	ET-408884J	TR CHIP UN9215
TR28	ET-408617J	TR CHIP 2SD2216 R.S
TR29	ET-408886J	TR CHIP UN9213
TR30	ET-408886J	TR CHIP UN9213
TR31	ET-408617J	TR CHIP 2SD2216 R.S
TR32	ET-410240J	TR D-CHIP XP4501 TWT08E
TR34	ET-408617J	TR CHIP 2SD2216 R.S
TR35	ET-408616J	TR CHIP 2SB1462 R.S
TR36	ET-410240J	TR D-CHIP XP4501 TWT08E
TR37	ET-410453J	TR D-CHIP XP1113 TWT08E
TR38	ET-410459J	TR D-CHIP XP2501 TWT08E
TR39	ET-408883J	TR CHIP UN9113
TR40	ET-408883J	TR CHIP UN9113
TR41	ET-408616J	TR CHIP 2SB1462 R.S
TR42	ET-408884J	TR CHIP UN9215
TR43	ET-408617J	TR CHIP 2SD2216 R.S
TR44	ET-410457J	TR CHIP UN911L
TR48	ET-408886J	TR CHIP UN9213
TR51	ET-410240J	TR D-CHIP XP4501 TWT08E
TR52	ET-408617J	TR CHIP 2SD2216 R.S
TR53	ET-408617J	TR CHIP 2SD2216 R.S
TR54	ET-408617J	TR CHIP 2SD2216 R.S
TR55	ET-408886J	TR CHIP UN9213
TR56	ET-408617J	TR CHIP 2SD2216 R.S
TR57	ET-408617J	TR CHIP 2SD2216 R.S
TR58	ET-408879J	TR CHIP UN9111
TR59	ET-410238J	TR D-CHIP XP1501 TWT08E
TR61	ET-408617J	TR CHIP 2SD2216 R.S
TR62	ET-410238J	TR D-CHIP XP1501 TWT08E
TR63	ET-408617J	TR CHIP 2SD2216 R.S
TR64	ET-408884J	TR CHIP UN9215
TR65	ET-408886J	TR CHIP UN9213
TR71	ET-408617J	TR CHIP 2SD2216 R.S
TR72	ET-408616J	TR CHIP 2SB1462 R.S
TR73	ET-408617J	TR CHIP 2SD2216 R.S
TR74	ET-408886J	TR CHIP UN9213
TR75	ET-410453J	TR D-CHIP XP1113 TWT08E
TR77	ET-408617J	TR CHIP 2SD2216 R.S
TR78	ET-408617J	TR CHIP 2SD2216 R.S

Ref. No.	Part No.	Description
TR79	ET-408886J	TR CHIP UN9213
TR80	ET-408886J	TR CHIP UN9213
TR81	ET-408886J	TR CHIP UN9213
TR82	ET-410240J	TR D-CHIP XP4501 TWT08E
TR83	ET-410239J	TR D-CHIP XP4401 TWT08E
TR85	ET-410240J	TR D-CHIP XP4501 TWT08E
TR86	ET-408616J	TR CHIP 2SB1462 R.S
TR91	ET-408616J	TR CHIP 2SB1462 R.S
TR92	ET-408883J	TR CHIP UN9113
TR93	ET-408883J	TR CHIP UN9113
TR94	ET-410238J	TR D-CHIP XP1501 TWT08E
TR102	ET-410238J	TR D-CHIP XP1501 TWT08E
TR102	ET-386028J	TR CHIP 2SB815 B6 TAT08E
TR103	ET-386028J	TR CHIP 2SB815 B6 TAT08E
TR104	ET-410458J	TR D-CHIP XP4213 TWT08E
TR105	ET-408883J	TR CHIP UN9113
TR106	ET-386028J	TR CHIP 2SB815 B6 TAT08E
TR107	ET-404495J	TR D-CHIP XP1213 TWT08E
TR108	ET-408616J	TR CHIP 2SB1462 R.S
TR109	ET-408886J	TR CHIP UN9213
TR111	ET-408886J	TR CHIP UN9213
TR113	ET-411693J	TR D-CHIP UMA9 TLT08E
TR114	ET-412297J	TR D-CHIP XP1211 TXT08E
TR115	ET-408886J	TR CHIP UN9213
TR116	ET-408886J	TR CHIP UN9213
TR301	ET-408616J	TR CHIP 2SB1462 R.S
TR302	ET-410241J	TR D-CHIP XP4601 TWT08E
TR303	ET-404454J	TR D-CHIP XP4312 TWT08E
TR306	ET-386029J	TR CHIP 2SB1121 T
TR307	ET-386029J	TR CHIP 2SB1121 T
TR308	ET-386029J	TR CHIP 2SB1121 T
TR309	ET-386029J	TR CHIP 2SB1121 T
TR310	ET-408616J	TR CHIP 2SB1462 R.S
TR311	ET-408886J	TR CHIP UN9213
TR501	ET-386030J	TR CHIP 2SC4081 R,S
TR502	ET-386030J	TR CHIP 2SC4081 R,S
TR503	ET-386030J	TR CHIP 2SC4081 R,S
TR504	ET-386030J	TR CHIP 2SC4081 R,S
TR505	ET-408616J	TR CHIP 2SB1462 R.S
TR506	ET-386030J	TR CHIP 2SC4081 R,S
TR507	ET-386030J	TR CHIP 2SC4081 R,S
TR508	ET-386030J	TR CHIP 2SC4081 R,S
TR509	ET-386030J	TR CHIP 2SC4081 R,S
TR512	ET-408886J	TR CHIP UN9213
TR513	ET-408886J	TR CHIP UN9213
TR514	ET-408883J	TR CHIP UN9113
VR1	EV-408596J	R S-FIX C. T08 TMC3KTR 223
VR2	EV-404153J	R S-FIX C. T08 TMC3KTR 473
VR3	EV-404153J	R S-FIX C. T08 TMC3KTR 473
VR4	EV-404156J	R S-FIX C. T08 TMC3KTR 472
VR5	EV-412286J	R S-FIX C. T08 TMC3KTR 153
VR6	EV-404153J	R S-FIX C. T08 TMC3KTR 473
VR7	EV-404156J	R S-FIX C. T08 TMC3KTR 472
VR8	EV-406700J	R S-FIX C. T08 TMC3KTR 102
VR9	EV-406700J	R S-FIX C. T08 TMC3KTR 102
VR10	EV-406700J	R S-FIX C. T08 TMC3KTR 102
VR11	EV-406700J	R S-FIX C. T08 TMC3KTR 102
VR12	EV-406700J	R S-FIX C. T08 TMC3KTR 102
VR13	EV-406700J	R S-FIX C. T08 TMC3KTR 102
VR14	EV-404151J	R S-FIX C. T08 TMC3KTR 222
VR15	EV-408570J	R S-FIX C. T08 TMC3KTR 682
VR16	EV-406700J	R S-FIX C. T08 TMC3KTR 102
VR501	EV-404150J	R S-FIX C. T08 TMC3KTR 103
VR502	EV-404150J	R S-FIX C. T08 TMC3KTR 103
VR503	EV-404150J	R S-FIX C. T08 TMC3KTR 103
VR504	EV-404150J	R S-FIX C. T08 TMC3KTR 103
X201	EI-404438J	OSC X,TAL C.SMD-49 4.433619MHZ
X301	EI-412113J	OSC X,TAL C.SX-1 5.85938MHZ
X302	EI-412114J	OSC X,TAL C.SX-1 12.000MHZ
X701	EI-368825M	OSC X'TAL C-002RX 32.768KHZ
X702	EI-408543J	OSC CE CHIP FAR-C4CD04000-M20R

8. PRE AMP P.C BOARD

Ref. No.	Part No.	Description
D901	ED-386031J	D SILICON CHIP MA110-TW
D902	ED-386031J	D SILICON CHIP MA110-TW
D903	ED-386031J	D SILICON CHIP MA110-TW
IC901	EI-412017J	IC HA118041MP-ER
P915	EJ-412025J	PLUG C.53268-1890 18P
P916	EJ-408603J	PLUG C.52204-1290 12P
TR901	ET-408616J	TR CHIP 2SB1462 R.S
TR902	ET-408616J	TR CHIP 2SB1462 R.S
TR903	ET-408883J	TR CHIP UN9113
TR904	ET-408617J	TR CHIP 2SD2216 R.S
TR905	ET-404462J	TR CHIP UN9211
TR906	ET-408617J	TR CHIP 2SD2216 R.S
TR907	ET-410458J	TR D-CHIP XP4213 TWT08E
TR909	ET-408617J	TR CHIP 2SD2216 R.S
TR910	ET-408617J	TR CHIP 2SD2216 R.S
TR911	ET-408880J	TR CHIP UN9115
TR912	ET-408617J	TR CHIP 2SD2216 R.S
TR913	ET-408617J	TR CHIP 2SD2216 R.S
TR914	ET-408617J	TR CHIP 2SD2216 R.S
TR915	ET-408617J	TR CHIP 2SD2216 R.S
TR916	ET-404462J	TR CHIP UN9211
TR917	ET-404462J	TR CHIP UN9211
TR918	ET-408879J	TR CHIP UN9111
TR919	ET-408879J	TR CHIP UN9111
TR920	ET-404462J	TR CHIP UN9211
TR921	ET-408617J	TR CHIP 2SD2216 R.S
TR923	ET-408883J	TR CHIP UN9113
TR924	ET-404462J	TR CHIP UN9211
TR925	ET-408879J	TR CHIP UN9111
TR927	ET-389577J	TR.CHIP 2SD1328-TW S,T
TR928	ET-389577J	TR.CHIP 2SD1328-TW S,T
TR929	ET-403671J	TR D-CHIP IMB6
TR930	ET-408886J	TR CHIP UN9213
TR931	ET-408617J	TR CHIP 2SD2216 R.S

9. MIC AMP P.C BOARD

Ref. No.	Part No.	Description
TR651	ET-410241J	TR D-CHIP XP4601 TWT08E
TR652	ET-410239J	TR D-CHIP XP4401 TWT08E
TR653	ET-410422J	TR FET CHIP 2SK1332-3 TLT08E
TR654	ET-408617J	TR CHIP 2SD2216 R.S
TR655	ET-410239J	TR D-CHIP XP4401 TWT08E
TR656	ET-386030J	TR CHIP 2SC4081 R,S
TR661	ET-410241J	TR D-CHIP XP4601 TWT08E
TR662	ET-410239J	TR D-CHIP XP4401 TWT08E
TR663	ET-410422J	TR FET CHIP 2SK1332-3 TLT08E
TR664	ET-408617J	TR CHIP 2SD2216 R.S
TR665	ET-410239J	TR D-CHIP XP4401 TWT08E
TR666	ET-386030J	TR CHIP 2SC4081 R,S

10. HI8 SUB P.C BOARD

Ref. No.	Part No.	Description
D801	ED-386031J	D SILICON CHIP MA110-TW
D802	ED-412061J	D SILICON CHIP MA147
FL801	EH-410462J	FILTER LC C.MXF3535L5R00T005
IC801	EI-410134J	IC AN1393S
IC802	EI-410451J	IC MC14053BFR2
IC803	EI-410463J	IC MSM7403MS-KR4
IC804	EI-408572J	IC CXL1506M
P801	EJ-408592J	SOCKET C.CPB8518-0151 18P T24E
P802	EJ-411427J	SOCKET C.CPB8514-01 14P
P803	EJ-403624J	PLUG C.53261-0490 4P
TR801	ET-408617J	TR CHIP 2SD2216 R.S
TR802	ET-408617J	TR CHIP 2SD2216 R.S
TR803	ET-408616J	TR CHIP 2SB1462 R.S
TR804	ET-408616J	TR CHIP 2SB1462 R.S
TR805	ET-408617J	TR CHIP 2SD2216 R.S
TR808	ET-408879J	TR CHIP UN9111
TR809	ET-408886J	TR CHIP UN9213
TR810	ET-410238J	TR D-CHIP XP1501 TWT08E
TR811	ET-408617J	TR CHIP 2SD2216 R.S
TR812	ET-408617J	TR CHIP 2SD2216 R.S
TR813	ET-408617J	TR CHIP 2SD2216 R.S
TR814	ET-408617J	TR CHIP 2SD2216 R.S
TR815	ET-408880J	TR CHIP UN9115
TR816	ET-408616J	TR CHIP 2SB1462 R.S
TR817	ET-408617J	TR CHIP 2SD2216 R.S
TR818	ET-408616J	TR CHIP 2SB1462 R.S
TR819	ET-408617J	TR CHIP 2SD2216 R.S
TR820	ET-408616J	TR CHIP 2SB1462 R.S
TR821	ET-408616J	TR CHIP 2SB1462 R.S
TR822	ET-408617J	TR CHIP 2SD2216 R.S
TR823	ET-408617J	TR CHIP 2SD2216 R.S
TR824	ET-408616J	TR CHIP 2SB1462 R.S
TR825	ET-408617J	TR CHIP 2SD2216 R.S
TR826	ET-408880J	TR CHIP UN9115
TR827	ET-408617J	TR CHIP 2SD2216 R.S
TR828	ET-408617J	TR CHIP 2SD2216 R.S
TR829	ET-410456J	TR D-CHIP XP1401 TWT08E
TR830	ET-408617J	TR CHIP 2SD2216 R.S
TR832	ET-404462J	TR CHIP UN9211

11. CAMERA (1) P.C BOARD

Ref. No.	Part No.	Description
D301	ED-408555J	D SOHOTTKY CHIP U1GWJ49
D302	ED-408555J	D SOHOTTKY CHIP U1GWJ49
D303	ED-408555J	D SOHOTTKY CHIP U1GWJ49
D304	ED-408555J	D SOHOTTKY CHIP U1GWJ49
D306	ED-386024J	D SILICON CHIP DA204U
D307	ED-410589J	D LED C.CL180URCTS RED T08E
IC301	EI-408550J	IC CXD1172AM-T3
IC302	EI-403658J	IC LB1830M
IC303	EI-408551J	IC TB6504F-EL
IC304	EI-410133J	IC AN1324NS
IC305	EI-410133J	IC AN1324NS
IC306	EI-408504J	IC LC3664RML-10
IC307	EI-408503J	IC LV4101W
IC308	EI-408552J1	IC MB636128 DAF02-FSY
IC309	EI-408501J1	IC M37451M8-224FP EMZCMR2
IC310	EI-410169J	IC ST24C02AM1013TR
IC311	EI-410137J	IC MC74HC02AFR
IC312	EI-410134J	IC AN1393S
IC313	EI-410136J	IC MC74HC4002FR
IC314	EI-410132J	IC AN1339S
IC315	EI-410131J	IC MC34074DR
IC316	EI-410135J	IC MC74HC4066FR
J302	EJ-408592J	SOCKET C.CPB8518-0151 18P T24E
J303	EJ-408592J	SOCKET C.CPB8518-0151 18P T24E
P304	EJ-412039J	PLUG C.52396-2090 20P
P305	EJ-408513J	PLUG C.52396-2490 24P
P306	EJ-412102J	PLUG C.53261-1290 12P
TR301	ET-408617J	TR CHIP 2SD2216 R.S
TR304	ET-408617J	TR CHIP 2SD2216 R.S
TR305	ET-408617J	TR CHIP 2SD2216 R.S
TR306	ET-410240J	TR D-CHIP XP4501 TWT08E
TR307	ET-410241J	TR D-CHIP XP4601 TWT08E
TR310	ET-408616J	TR CHIP 2SB1462 R.S
TR311	ET-408886J	TR CHIP UN9213
TR313	ET-408880J	TR CHIP UN9115
TR314	ET-408886J	TR CHIP UN9213
TR315	ET-410241J	TR D-CHIP XP4601 TWT08E
TR316	ET-410241J	TR D-CHIP XP4601 TWT08E
TR318	ET-410238J	TR D-CHIP XP1501 TWT08E
TR319	ET-408617J	TR CHIP 2SD2216 R.S
TR320	ET-408617J	TR CHIP 2SD2216 R.S
TR321	ET-404495J	TR D-CHIP XP1213 TWT08E
TR322	ET-410238J	TR D-CHIP XP1501 TWT08E
TR323	ET-408886J	TR CHIP UN9213
TR324	ET-408617J	TR CHIP 2SD2216 R.S
TR325	ET-403663J	TR CHIP DTC124TU
TR326	ET-403804J	TR CHIP DTC124EE
TR327	ET-412101J	TR D-CHIP XP4115 TWT08E
TR328	ET-408886J	TR CHIP UN9213
VR301	EV-404158J	R S-FIX C. T08 TMC3KTR 104
X301	EI-408516J	OSC CE CHIP CSAC10.2MTF001TR
X302	EI-408517J	OSC CE CHIP FAR-C4CD12000M02-R

12. CAMERA (2) P.C BOARD

Ref. No.	Part No.	Description
D101	ED-394636J	D VARACTOR CHIP 1SV200
D102	ED-405339J	D SILICON CHIP DA115
FL101	EH-410171J	FILTER LC CHIP RXV-5YEN
FL102	EH-410170J	FILTER LC CHIP RZV-27GN
IC101	EI-386023J	IC AN1358S-T1
IC102	EI-408561J	IC.AN2146FHP
IC103	EI-386021J	IC MN3824S-T1
IC104	EI-403580J	IC AN2457SB
IC105	EI-403505J	IC M62352GP
IC106	EI-403505J	IC M62352GP
IC107	EI-410131J	IC MC34074DR
IC108	EI-386023J	IC AN1358S-T1
IC109	EI-408506J	IC MN5181H
IC110	EI-401280J	IC MN73033XRA
IC111	EI-403519J	IC AN2012SB
IC112	EI-410139J	IC SC7S04FER
IC113	EI-410138J	IC SC14S71FER
P101	EJ-412025J	PLUG C.53268-1890 18P
P102	EJ-408593J	PLUG C.CPB8618-0151 18P T24E
P103	EJ-408593J	PLUG C.CPB8618-0151 18P T24E
P128	EJ-403630J	PLUG C.53263-1490 14P
TR101	ET-410241J	TR D-CHIP XP4601 TWT08E
TR102	ET-408617J	TR CHIP 2SD2216 R.S
TR103	ET-408616J	TR CHIP 2SB1462 R.S
TR104	ET-403561J	TR CHIP 2SC4617 R
TR105	ET-408617J	TR CHIP 2SD2216 R.S
TR106	ET-408617J	TR CHIP 2SD2216 R.S
TR107	ET-410239J	TR D-CHIP XP4401 TWT08E
TR108	ET-408617J	TR CHIP 2SD2216 R.S
TR109	ET-408617J	TR CHIP 2SD2216 R.S
TR110	ET-408617J	TR CHIP 2SD2216 R.S
TR111	ET-408617J	TR CHIP 2SD2216 R.S
TR112	ET-410240J	TR D-CHIP XP4501 TWT08E
TR113	ET-408617J	TR CHIP 2SD2216 R.S
TR114	ET-410241J	TR D-CHIP XP4601 TWT08E
TR115	ET-408616J	TR CHIP 2SB1462 R.S
TR116	ET-408616J	TR CHIP 2SB1462 R.S
TR117	ET-408616J	TR CHIP 2SB1462 R.S
TR120	ET-403559J	TR D-CHIP UMW1
VC101	EC-408476J	C S-FIX CHIP T12 TZBX4P300AA
X101	EI-410174J	OSC X,TAL C.JXO-3F 25.750MHZ
X102	EI-410176J	OSC X,TAL C.CX49F 17734.475KHZ

13. CCD P.C BOARD

Ref. No.	Part No.	Description
D2	ED-405339J	D SILICON CHIP DA115
IC1	EI-410627J	IC UPD16506GR-8JG
J1	EJ-403813J	SOCKET C.52357-1890 18P
J2	EJ-403642J1	SOCKET C.DICC-C16A1-SM1 [CCD SOCKET]
TR1	ET-408616J	TR CHIP 2SB1462 R.S
TR2	ET-408617J	TR CHIP 2SD2216 R.S
TR4	ET-408617J	TR CHIP 2SD2216 R.S
TR5	ET-403561J	TR CHIP 2SC4617 R

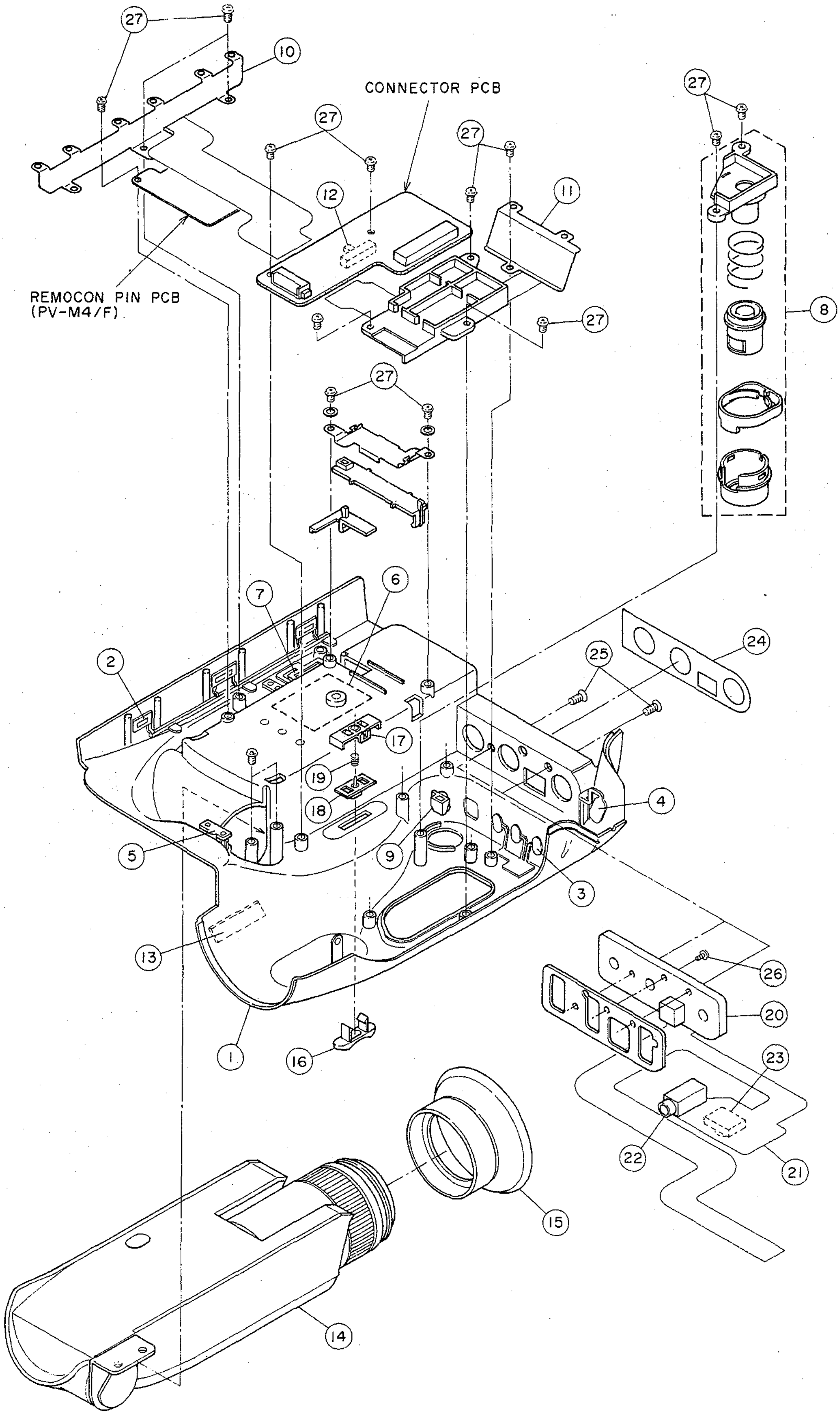
14. POWER SUPPLY P.C BOARD

Ref. No.	Part No.	Description
D701	ED-380715J	D SILICON ERB83-004 40/1.7A
D702	ED-408555J	D SOHOTTKY CHIP U1GWJ49
D703	ED-408555J	D SOHOTTKY CHIP U1GWJ49
D704	ED-389579J	D SILICON CHIP RB400D
D705	ED-389579J	D SILICON CHIP RB400D
D706	ED-408555J	D SOHOTTKY CHIP U1GWJ49
D707	ED-389578J	D SILICON CHIP RB451F T106T08E
D709	ED-392394J	D ZENER CHIP MA3039-H TW
D710	ED-386031J	D SILICON CHIP MA110-TW
D711	ED-408555J	D SOHOTTKY CHIP U1GWJ49
D731	ED-410246J	D LED C.BR1102W RED TRT08E
D732	ED-410245J	D LED C.PG1102W GREEN TRT08E
F701	*EF-410226J	FUSE C.SSFC 125V 3.15A T12E
IC701	EI-408534J	IC MB3778PFV
IC702	EI-408534J	IC MB3778PFV
J701	EJ-408599J	SOCKET INLET HEC3600-01-110 [DC JACK]
J709	EJ-412027J	SOCKET C.52365-2290 22P
L701	EO-410197J	COILFIX CHIP CI-6 T12 220M
L702	EO-410197J	COILFIX CHIP CI-6 T12 220M
L703	EO-410197J	COILFIX CHIP CI-6 T12 220M
L704	EO-410198J	COILFIX CHIP CF-8S T16 220M
L705	EO-410197J	COILFIX CHIP CI-6 T12 220M
L706	EO-403845J	COILFIX CHIP NLC453232T12 330K
L707	EO-410199J	COILFIX CHIP CF-8S T16 470M
L708	EO-390292J	COILFIX CHIP NLC322522T08 470K
L709	EO-390293J	COILFIX CHIP NLC322522T08 101K
L710	EO-390293J	COILFIX CHIP NLC322522T08 101K
L711	EO-410198J	COILFIX CHIP CF-8S T16 220M
L712	EO-410197J	COILFIX CHIP CI-6 T12 220M
P706	EJ-412102J	PLUG C.53261-1290 12P
SF701	*EF-404063J	FUSE ICP-F50 50V 2.0A
SF702	*EF-404063J	FUSE ICP-F50 50V 2.0A
SF703	*EF-404063J	FUSE ICP-F50 50V 2.0A
TB701	EJ-408204J	TERMINAL BATTERY PART
TB702	EJ-408204J	TERMINAL BATTERY PART
TB703	EJ-408206J	TERMINAL (+)
TB704	EJ-403173J	TERMINAL (-)
TR701	ET-410433J	TR CHIP 2SB1124 S,T,U
TR702	ET-410433J	TR CHIP 2SB1124 S,T,U
TR704	ET-410433J	TR CHIP 2SB1124 S,T,U
TR705	ET-410433J	TR CHIP 2SB1124 S,T,U
TR707	ET-403851J	TR.CHIP 2SD2150 R,S
TR708	ET-408617J	TR CHIP 2SD2216 R.S
TR709	ET-386028J	TR CHIP 2SB815 B6 TAT08E
TR710	ET-408617J	TR CHIP 2SD2216 R.S
TR711	ET-403851J	TR.CHIP 2SD2150 R,S
TR732	ET-408886J	TR CHIP UN9213
T701	EO-408538J	COILFIX CHIP ELL-06T008R
VR702	EV-404154J	R S-FIX C. T08 TMC3KTR 471

15. CONNECTOR P.C BOARD

Ref. No.	Part No.	Description
D101	ED-386031J	D SILICON CHIP MA110-TW
D102	ED-386024J	D SILICON CHIP DA204U
P111	EJ-408513J	PLUG C.52396-2490 24P
PH101	ET-410468J	DETECTOR GP1U561
TR101	ET-386053J	TR CHIP DTA143EU
TR102	ET-386053J	TR CHIP DTA143EU
TR103	ET-410150J	TR CHIP 2SB1218A R,S
TR104	ET-405625J	TR CHIP 2SD1819A-TW R,S
TR105	ET-405625J	TR CHIP 2SD1819A-TW R,S

UPPER CASE BLOCK



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CONNECTOR PCB
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REMOCON PIN PCB
(PV-M4/F)
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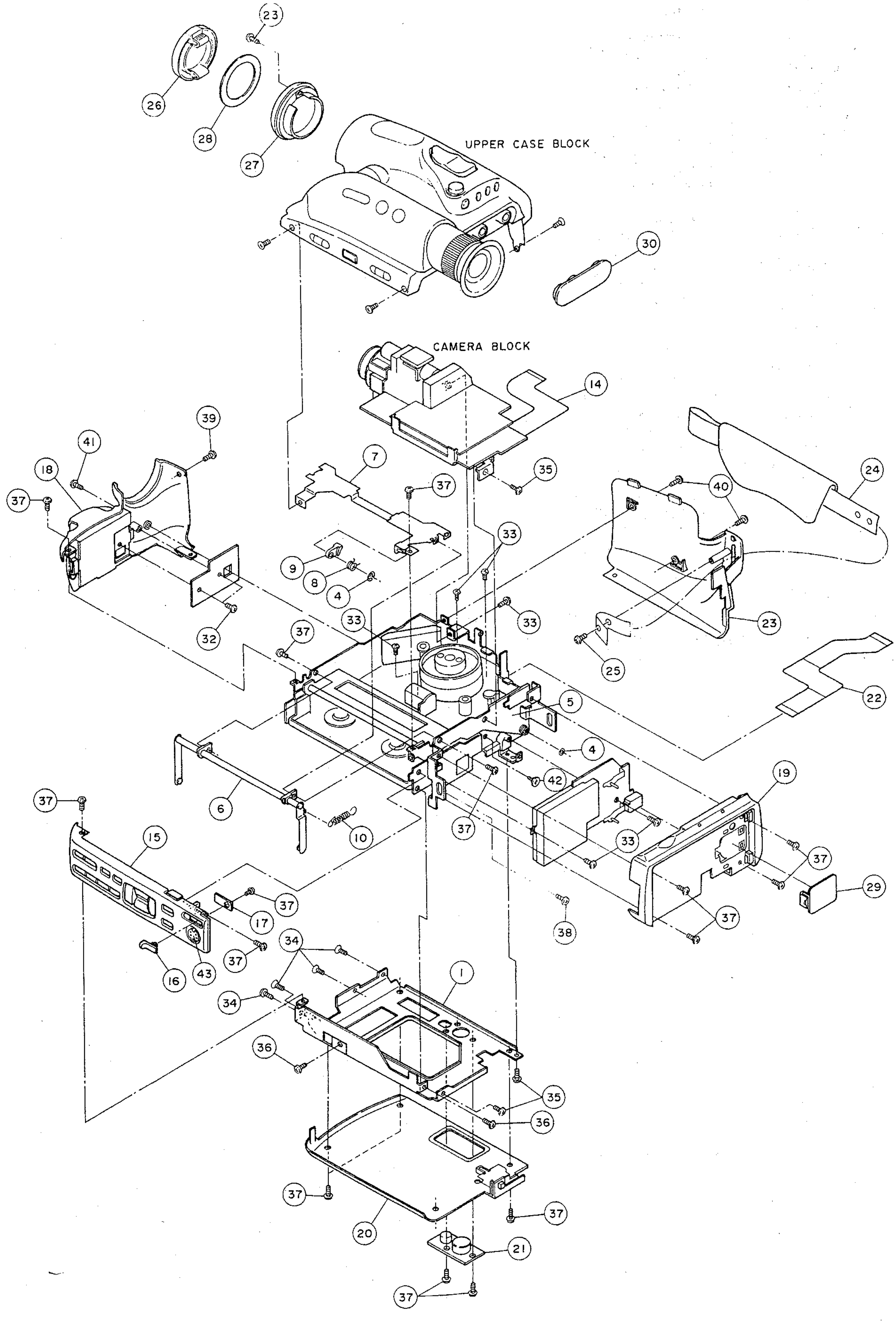
16. UPPER CASE BLOCK

Ref. No.	Part No.	Description
1A	SP-409787J3	CASE UPPER MS8
1B	SP-404406J3	CASE UPPER MS8F
2	SK-409790J1	BUTTON SIDE
3	SK-409791J1	BUTTON REAR
4	SK-409793J	BUTTON REC
5	SZ-409794J	LENS LED (F)
7A	SK-409795J	BUTTON REMOCON E
7B	SK-404409J	BUTTON REMOCON F
8	SZ-413607J	HOLDER SENSER PART
9	SK-409852J1	BUTTON SENSER
10	ES-410234J	OPERATION H M4
11	ES-410236J	OPERATION TW
12	ES-413067J	SW SLIDE SSSS81 01-03*
13	SM-410858J1	NAME PLATE AKAI M4-S
14A	VC-V3013A330A	E.V.F BLK PV-MS8
14B	VC-V3013A330B	E.V.F BLK PV-MS8F
15	ZS-409816J	CAP LENS VF
16	SK-409802J	KNOB POW
17	SZ-409804J	SLIDE POW
18	SK-409805J	BUTTON POW
19	ZG-409806J	SP PUSH POW
20	EJ-410222J	JACK PLATE AV *M4
21	EA-404434J1	PCB FLEXIBLE AV JACK
22	EJ-404433J	PHONE J 3P HSJ1424-01-500A 3.5
23	ES-403634J	SW TACT SKEYAB
24A	SE-404410J3	PLATE AV MS8
24B	SE-404411J3	PLATE AV MS8F
25	ZS-412177J	CTS17X05STL BNI PS3
26	ZS-377198	PAN17X04STL BZN PS1
27	ZS-409970J	BT PAN17X04STL BZN PS1
28	EJ-408209J1	PLATE REMOCON PART [REMOCON PIN PCB]

NOTE:
Parts will not be supplied if they are not listed in the parts list, even if they appear on the assembling illustrations with reference No.

FINAL ASSEMBLY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UPPER CASE BLOCK
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CAMERA BLOCK
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17. FINAL ASSEMBLY

Ref. No.	Part No.	Description
1	MZ-V3013A150A	COVER MECHA BLK PV-MS8
4	ZW-356657	RING E150SUP CMT
5	MZ-409827J2	HOLDER LENS (1) PART
6	ML-409761J	LEVER MAIN PART
7	MZ-409771J	HOLDER LENS (3) PART
8	ZG-409863J	SP TORSION LEVER PRESS
9	ML-409774J	LEVER PRESS
10	ZG-409775J	SP PULL LEVER MAIN (L)
14	EA-410230J	PCB FLEXIBLE CAMERA MAIN
15A	ES-411983J2	OPERATION A MS8
15B	ES-411984J2	OPERATION A MS8F FRENCH
16	SK-409723J	KNOB OPEN
17	ML-409725J1	SLIDE OPEN
18A	EY-411986J	MIC MS8
18B	EY-411987J	MIC MS8F FRENCH
19	SP-409729J1	CASE BATTERY MS8
20	BD-V3013A310A	CASE BOTTOM BLK PV-MS8
21	SZ-409733J	HOLDER STAND INSERT PART
22	EA-410233J	PCB FLEXIBLE OP MAIN
23	VC-409831J2	CASE GRIP MS8
24	VC-410520J	BELT GRIP
25	ZS-404011J	BT PAN20X06STL BZN C070
26	VC-409837J	CAP LENS MS8
27	VC-409736J2	HOOD LENS M4
28A	SE-411999J1	PLATE LENS MS8E
28B	SE-412000J1	PLATE LENS MS8F
29	SC-403178J1	COVER BATTERY
30	SC-409913J1	CAP AV OUT
31	ZS-390458J	BT PAN17X03STL BZN
32	ZS-409964J	BT PAN17X03STL BZN PS1
33	ZS-409970J	BT PAN17X04STL BZN PS1
34	ZS-394280J	CTS17X02STL BZN PS1
35	ZS-412192J	PAN17X025STL BZN PS1
36	ZS-374452	PAN17X03STL BZN PS1
37	ZS-390433J	PAN17X03STL BZN PS3
38	ZS-412269J	PAN17X10STL BZN PS1
39	ZS-412196J	OCS17X03STL BZN PS3
40	ZS-412195J	OCS17X04STL BZN PS3
41	ZS-412197J	OCS17X08STL BZN PS3
42	ZS-409830J	M.SCREW CHASSIS
43	EJ-413008J	SOCKET TCS7648-01-201 4P [S CONNECTOR]

NOTE:

Parts will not be supplied if they are not listed in the parts list, even if they appear on the assembling illustrations with reference No.

18. ACCESSARY

Ref. No.	Part No.	Description
1A	AV-410206J	AV CABLE VW-301 [PV-MS8]
1B	AV-412066J	AV CABLE VW-323 [PV-MS8F]
2	AV-403790J	CORD LLP0083-2000 DC-DC
3	AV-404396J	SHOULDER STRAP SB-101
4	AV-396085J	S CABLE VW-S500 [PV-MS8]
5A	AV-B1045A010A	REMOCON BLK RC-M8 [PV-MS8]
5B	AV-B1045A010B	REMOCON BLK RC-M8F [PV-MS8F]

19. AC ADAPTOR UNIT (VA-300)

Ref. No.	Part No.	Description
C2	EC-733237J	C EC 470 400V
D1	ED-732853J	D SILICON S1WB (A) 60
D2	ED-371510	D SILICON ERA22-08Y F05
D3	ED-385935J	D SILICON ERA22-04V3 T26 400/5
D4	ED-733238J	D SILICON ERA15-01V
D5	ED-733239J	D SILICON 1SS133T-77
D21	ED-733246J	D SILICON ESAB92M-02
D22	ED-733247J	D SILICON ERC81-004L7
F1	EF-733244J	FUSE 250V 1A
IC21	EI-718598	IC AN8005
IC31	EI-386011J	IC BA10358F
IC51	EI-733260J	IC FA5307S
IC71	EI-733262J	IC HA012612S
JK	EJ-733256J	JACK DC LGP6501-0100
L1	EH-733241J	FILTER UF1922S4-153
L2	EH-733242J	FILTER YU41206
L21	EO-733254J	COIL SN5-1700
L22	EO-733255J	COIL HA31254A
L23	EO-733255J	COIL HA31254A
LED21	ED-733249J	D LED SLR-34VR
LED22	ED-725278J	D LED SLR-34MC70F GREEN
PHC1	ET-733252J	DETECTOR PC111YS
Q1	ET-733245J	TR FET 2SK951
Q21	ET-733251J	TR 2SB952
Q22	ET-382952J	TR DTC123ES
Q23	ET-370634	TR DTA143XS
Q71	ET-732638J	TR CHIP DTC144EK
SW1	ES-733257J	SW MICRO MSS-8-2
T1	BT-733243J	TRANS ETS22K867A
TF1	EF-733253J	FUSE THEERMO S3
VR21	EV-389476J	R S-FIX H T05EVNDXAA03 0.1W103
X21	EI-382875J	OSC CE CST4.00MGW 4MHZ
ZD1	ED-724036J	D ZENER MTZJ27D
ZD2	ED-724036J	D ZENER MTZJ27D
ZD21	ED-717552	D ZENER H MA4051-M
ZD22	ED-733248J	D ZENER MTZJ5.6CT-77
1	BA-733293J	PC SUB (1) BLK
2	BA-733294J	PC SUB (2) BLK
3	*EW-733263J	AC CORD HL21254C (EG)
4	*EW-733264J	AC CORD HL21254D (EK)
5	*EW-733265J	AC CORD HL21254E (EA)

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AV403790J	18-2
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AV410206J	18-1A
AV412066J	18-1B
BA733293J	19-1
BA733294J	19-2
BA733351J	6-1
BA733352J	6-2
BA733353J	6-3
BA733354J	6-4
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BA733356J	6-6
BA733357J	6-7
BA733358J	6-8
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BLV3013A120A	3-70
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BM410228J	3-63
BM410229J	3-75
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BO410212J	5-1
BT733243J	19-T1
BVV3013A070A	3-52
BVV3013A080A	3-56
BVV3013A130A	3-74
BVV3013A200A	3-76
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EA409984J	3-1
EA410230J	17-14
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EC408476J	12-VC101
EC733237J	19-C2
ED371510	19-D2
ED380715J	14-D701
ED385935J	19-D3
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EI414543J	7-IC302
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ES410234J	16-10
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Part No.	Ref. No.	Part No.	Ref. No.	Part No.	Ref. No.	Part No.	Ref. No.
ES411984J2	17-15B	ET408616J	11-TR310	ET408617J	14-TR710	ET410240J	7-TR85
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ET386028J	7-TR102	ET408616J	13-TR1	ET408879J	10-TR808	ET410241J	9-TR661
ET386028J	7-TR103	ET408617J	7-TR13	ET408880J	8-TR911	ET410241J	11-TR307
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ET386030J	7-TR502	ET408617J	7-TR43	ET408883J	7-TR40	ET410433J	14-TR702
ET386030J	7-TR503	ET408617J	7-TR52	ET408883J	7-TR92	ET410433J	14-TR704
ET386030J	7-TR504	ET408617J	7-TR53	ET408883J	7-TR93	ET410433J	14-TR705
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ET408616J	7-TR108	ET408617J	11-TR320	ET410238J	11-TR318	EV406700J	7-VR11
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AKAI

MODEL PV-MS8

SCHEMATIC DIAGRAMS AND PC BOARDS

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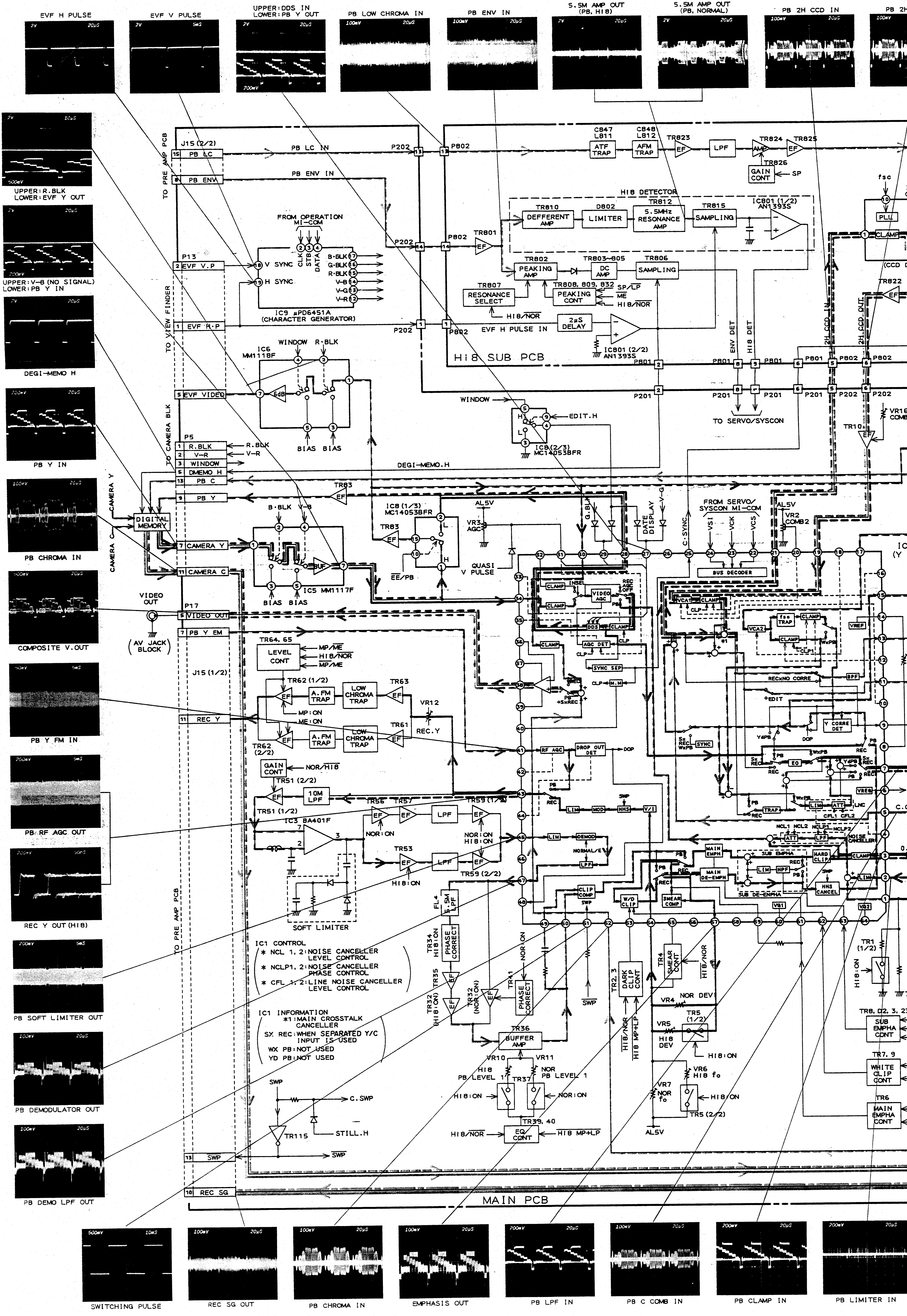
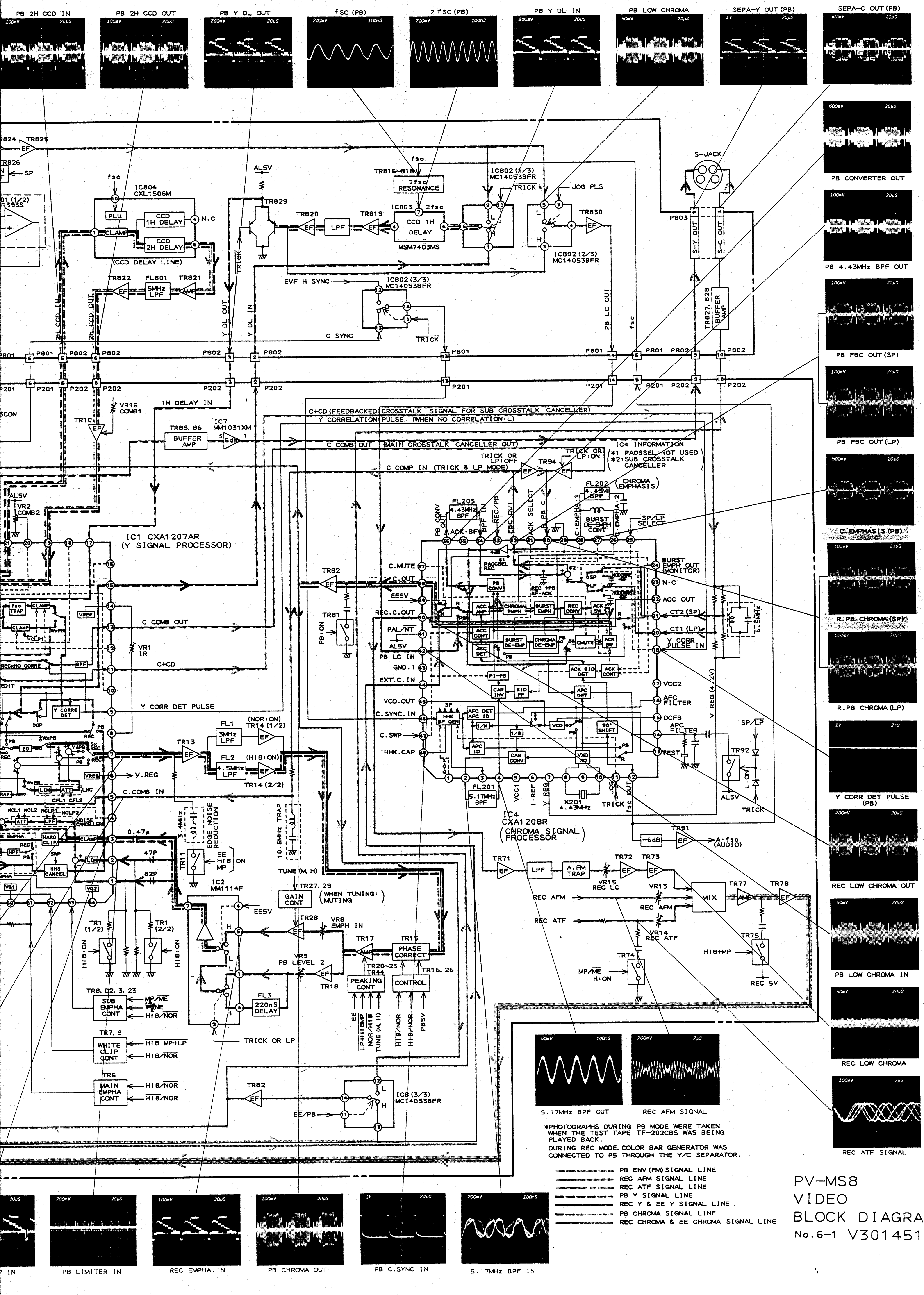
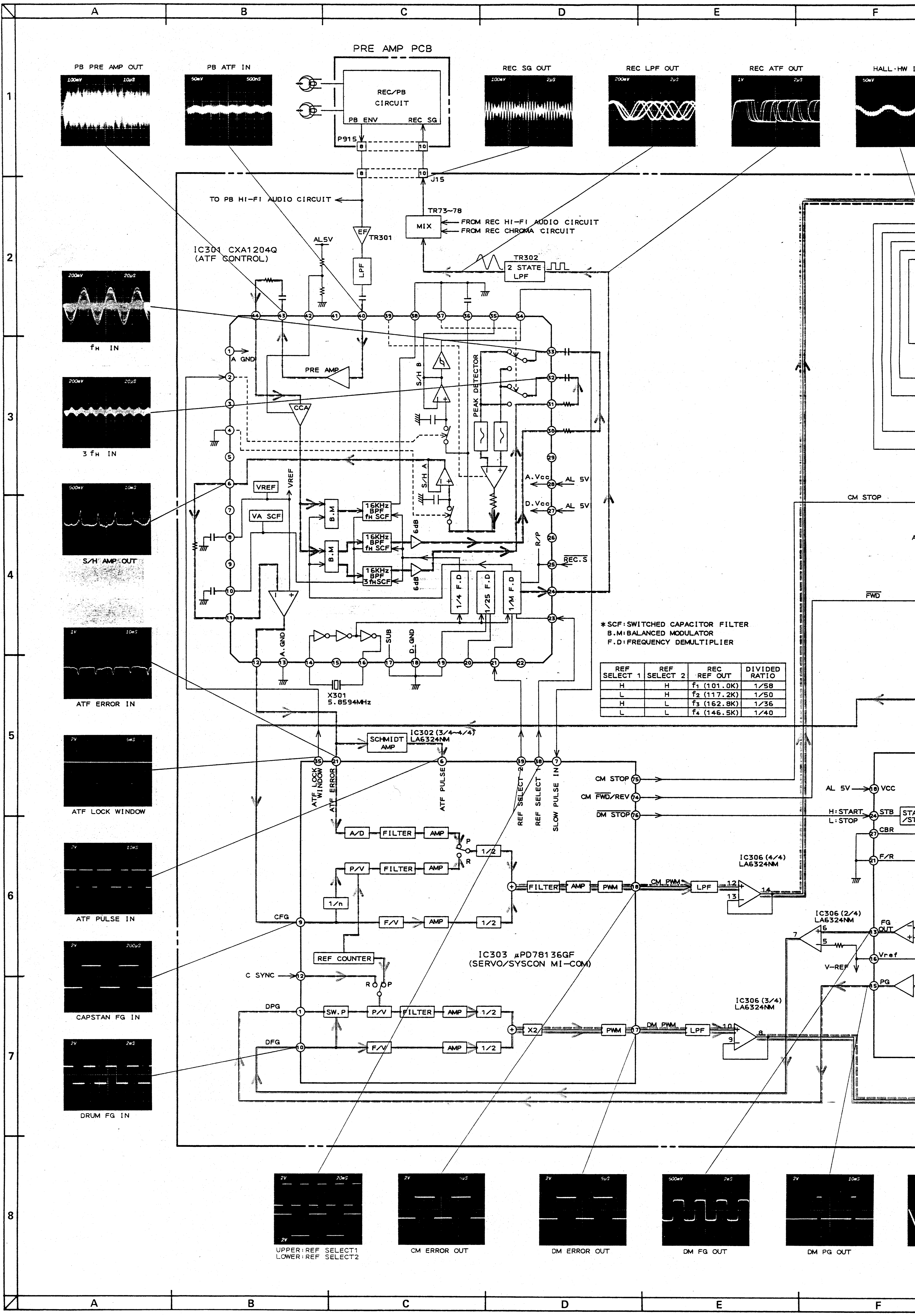

EVF H PULSE
EVF V PULSE
UPPER:DDS IN
LOWER:PB Y OUT
PB LOW CHROMA IN
PB ENV IN
5.5M AMP OUT (PB, HI8)
5.5M AMP OUT (PB, NORMAL)
PB 2H CCD IN
UPPER:R.BLK
LOWER:EVF Y OUT
UPPER:V-B (NO SIGNAL)
LOWER:PB Y IN
DEGI-MEMO H
PB Y IN
PB CHROMA IN
COMPOSITE V.OUT
PB Y FM IN
PB RF AGC OUT
REC Y OUT (HI8)
PB SOFT LIMITER OUT
PB DEMODULATOR OUT
PB DEMO LPF OUT
SWITCHING PULSE
REC SG OUT
PB CHROMA IN
EMPHASIS OUT
PB LPF IN
PB C COMB IN
PB CLAMP IN
PB LIMITER IN
TO PRE AMP PCB
TO VIEW FINDER
TO CAMERA BLK
J15 (2/2)
PB LC
PB ENV
PB LC IN
PB ENV IN
P202
P802
C847 L811
ATF TRAP
C848 L812
AFM TRAP
TR823
EF
LPF
TR824
AMP
TR825
TR826
GAIN CONT
SP
fsc
PLL
CLAMP
(CCD
TR822
HI8 DETECTOR
TR810
DEFFERENT AMP
D802
LIMITER
TR812
5.5MHz RESONANCE AMP
TR815
SAMPLING
IC801 (1/2) AN1393S
TR801
TR802
PEAKING AMP
TR803~805
DC AMP
TR806
SAMPLING
TR807
RESONANCE SELECT
TR808, 809, 832
PEAKING CONT
SP/LP
ME
HI8/NOR
2μS DELAY
IC801 (2/2) AN1393S
EVF H PULSE IN
Hi8 SUB PCB
P801
P201
ENV DET
HI8 DET
2H CCD IN
2H CCD OUT
TO SERVO/SYSCON
VR16 COMB
TR10
FROM OPERATION MI-COM
CLK STB DATA
P13
EVF V.P
V SYNC
H SYNC
B-BLK
G-BLK
R-BLK
V-B
V-G
V-R
IC9 μPD6451A (CHARACTER GENERATOR)
EVF H.P
IC6 MM1118F
WINDOW
R-BLK
6dB
BIAS
BIAS
EVF VIDEO
WINDOW
EDIT.H
IC8 (2/3) MC14053BFR
P5
R.BLK
V-R
WINDOW
DMEMO H
PB C
PB Y
DEGI-MEMO.H
TR83
CAMERA Y
CAMERA C
DIGITAL MEMORY
B-BLK
V-B
IC8 (1/3) MC14053BFR
TR83
EF
EE/PB
BUF
IC5 MM1117F
BIAS
BIAS
AL5V
VR3 AGC
QUASI V PULSE
G.BLK
DATE DISPLAY
V-G
C.SYNC
FROM SERVO/SYSCON MI-COM
VSI
VCK
VCS
BUS DECODER
AL5V
VR2 COMB2
VIDEO OUT
(AV JACK BLOCK)
P17
VIDEO OUT
PB Y EM
J15 (1/2)
TR64, 65
LEVEL CONT
MP/ME
HI8/NOR
MP/ME
TR62 (1/2)
A.FM TRAP
LOW CHROMA TRAP
TR63
MP:ON
ME:ON
VR12
REC.Y
TR61
TR62 (2/2)
REC Y
GAIN CONT
NOR/HI8
TR51 (2/2)
10M LPF
TR51 (1/2)
TR56
TR57
TR59 (1/2)
IC3 BA401F
NOR:ON
HI8:ON
TR53
TR59 (2/2)
HI8:ON
SOFT LIMITER
FL4 5.5M LPF
TR34 HI8:ON
PHASE CORRECT
TR35
TR32 (HI8:ON)
TR32 (NOR:ON)
TR11
NOR:ON
PHASE CORRECT
TR36
BUFFER AMP
VR10
HI8 PB LEVEL 1
TR37
VR11
NOR PB LEVEL 1
HI8:ON
NOR:ON
HI8/NOR
EQ CONT
TR39, 40
HI8 MP+LP
IC1 CONTROL
* NCL 1, 2: NOISE CANCELLER LEVEL CONTROL
* NCLP1, 2: NOISE CANCELLER PHASE CONTROL
* CFL 1, 2: LINE NOISE CANCELLER LEVEL CONTROL
IC1 INFORMATION
*1: MAIN CROSSTALK CANCELLER
SX REC: WHEN SEPARATED Y/C INPUT IS USED
WX PB: NOT USED
YD PB: NOT USED
SWP
C.SWP
STILL.H
TR115
SWP
SWP
REC SG
MAIN PCB
CLAMP
INSEL
VIDEO AGC
REC AGC OFF
DDS
AGC DET
CLP
SYNC SEP
M.M
PB +SxREC
RF AGC
DROP OUT DET
DOP
LIM
MOD
HHS
V/I
DEMOD
NORMAL/E
LPF
CLIP COMP
W/D CLIP
SMEAR COMP
VG1
VG2
MAIN EMPH
MAIN DE-EMPH
SUB EMPHA
SUB DE-EMPHA
HARD CLIP
HHS CANCEL
LIM
HPF
ATT
NCL1 NCL2 NCLP1 NCLP2
NOISE CANCELLER
CFL1 CFL2
LNC
TRAP
VREG
EQ
Y CORRE DET
RECxNO CORRE
EDIT
BPF
VCA1
VCA2
fsc TRAP
VREF
DARK CLIP CONT
TR2, 3
SMEAR CONT
TR4
HI8/NOR
VR4
NOR DEV
TR5 (1/2)
VR5
HI8 DEV
HI8:ON
VR6 HI8 fo
VR7 NOR fo
HI8/NOR
HI8 MP+LP
HI8:ON
TR5 (2/2)
AL5V
TR1 (1/2)
HI8:ON
TR8, D2, 3
SUB EMPHA CONT
TR7, 9
WHITE CLIP CONT
TR6
MAIN EMPHA CONT
IC (Y


PB 2H CCD IN
PB 2H CCD OUT
PB Y DL OUT
fSC (PB)
2 fSC (PB)
PB Y DL IN
PB LOW CHROMA
SEPA-Y OUT (PB)
SEPA-C OUT (PB)
PB CONVERTER OUT
PB 4.43MHz BPF OUT
PB FBC OUT (SP)
PB FBC OUT (LP)
C. EMPHASIS (PB)
R.PB. CHROMA (SP)
R.PB CHROMA (LP)
Y CORR DET PULSE (PB)
REC LOW CHROMA OUT
PB LOW CHROMA IN
REC LOW CHROMA
REC ATF SIGNAL
5.17MHz BPF OUT
REC AFM SIGNAL
P IN
PB LIMITER IN
REC EMPHA. IN
PB CHROMA OUT
PB C.SYNC IN
5.17MHz BPF IN
TR824
TR825
TR826
SP
fsc
IC804
CXL1506M
PLL
CLAMP
CCD 1H DELAY
CCD 2H DELAY
N.C
(CCD DELAY LINE)
AL5V
TR829
TR820
LPF
TR819
TR816~818
2fsc RESONANCE
IC803
2fsc
CCD 1H DELAY
MSM7403MS
IC802 (1/3)
MC14053BFR
TRICK
JOG PLS
TR830
IC802 (2/3)
MC14053BFR
S-JACK
P803
S-Y OUT
S-C OUT
TR822
FL801
5MHz LPF
TR821
AMP
EVF H SYNC
IC802 (3/3)
MC14053BFR
C SYNC
TRICK
2H CCD IN
2H CCD OUT
Y DL OUT
Y DL IN
PB LC OUT
fsc
TR827, 828
BUFFER AMP
P801
P802
P201
P202
1H DELAY IN
VR16 COMB1
TR10
TR85, 86
BUFFER AMP
IC7
MM1031XM
6dB
C+CD (FEEDBACKED CROSSTALK SIGNAL FOR SUB CROSSTALK CANCELLER)
Y CORRELATION PULSE (WHEN NO CORRELATION:L)
C COMB OUT (MAIN CROSSTALK CANCELLER OUT)
IC4 INFORMATION
*1 PAOSSEL: NOT USED
*2: SUB CROSSTALK CANCELLER
TRICK OR LP: OFF
TR94
TRICK OR LP: ON
C COMP IN (TRICK & LP MODE)
FL202
4.43M BPF
CHROMA (EMPHASIS)
FL203
4.43MHz BPF
PB CONV OUT
ACK BF
BPF IN
REC/PB
FBC OUT
ACK SELECT
R PB C
C. EMPH-1
C. EMPH-2
BURST DE-EMPH CONT
SP/LP SELECT
AL5V
VR2 COMB2
IC1 CXA1207AR
(Y SIGNAL PROCESSOR)
C.MUTE
C.OUT
EESV
REC.C.OUT
PAL/NT
AL5V
PB LC IN
GND.1
EXT.C.IN
VCO.OUT
C.SYNC.IN
C.SWP
HHK.CAP
TR82
TR81
PB: ON
BURST EMPH OUT (MONITOR)
N.C
ACC OUT
CT2 (SP)
CT1 (LP)
Y CORR PULSE IN
VCC2
AFC FILTER
DCFB
APC FILTER
TEST
6.5MHz
V REG (4.2V)
SP/LP
TR92
AL5V
L:ON
TRICK
PAOSSEL REC
PB CONV
ACC AMP
CHROMA EMPH
BURST EMPH
REC CONV
ACK SW
ACC CONT
ACC DET
BURST DE-EMP
CHROMA DE-EMP
CMUTE
ACK SW
ACK BID DET
ACK CONT
P1-PS
CAR INV
BID FF
APC DET
HHK BF GEN
AFC DET
AFC ID
1/N
1/8
VCO
90° SHIFT
APC ID
CAR CONV
VXO XO
FL201
5.17MHz BPF
VCC1
I.REF
V REG
X201
4.43MHz
TRICK
fsc OUT
IC4
CXA1208R
(CHROMA SIGNAL PROCESSOR)
TR91
-6dB
A.fsc (AUDIO)
TR71
LPF
A.FM TRAP
TR72
TR73
VR15 REC LC
VR13 REC AFM
MIX
TR77
AMP
TR78
REC AFM
REC ATF
VR14 REC ATF
TR75
HI8+MP
REC 5V
TR74
MP/ME H:ON
fsc TRAP
CLAMP
VREF
CLAMP
CLP1
C COMB OUT
VR1 IR
C+CD
RECxNO CORRE
BPF
EDIT
Y CORR DET PULSE
Y CORRE DET
DOP
PB
REC
EQ
V.REG
C.COMB IN
FL1
3MHz LPF
(NOR:ON) TR14 (1/2)
TR13
FL2
4.5MHz LPF
(HI8:ON)
TR14 (2/2)
EDGE NOISE REDUCTION
3.4MHz
10.6MHz TRAP
TR11
EE HI8 MP
ON
LIM
ATT
CFL1 CFL2
NCL1 NCL2 NCLP1
NCLP2
NOISE CANCELLER
HARD CLIP
HPF
HHS CANCEL
0.47μ
47P
82P
IC2
MM1114F
EE5V
TUNE (M, H)
TR27, 29
GAIN CONT
(WHEN TUNING: MUTING)
TR28
VR8 EMPH IN
VR9 PB LEVEL 2
TR17
AMP
TR15
PHASE CORRECT
TR18
TR20~25
TR44
TR16, 26
PEAKING CONT
CONTROL
FL3
220nS DELAY
EE
LP+HI8 MP
NOR/HI8
TUNE (M, H)
HI8/NOR
HI8/NOR
PB5V
TRICK OR LP
TR1 (1/2)
TR1 (2/2)
HI8:ON
HI8:ON
TR8, D2, 3, 23
SUB EMPHA CONT
MP/ME
TUNE
HI8/NOR
TR7, 9
WHITE CLIP CONT
HI8 MP+LP
HI8/NOR
TR6
MAIN EMPHA CONT
HI8/NOR
HI8/NOR
TR82
IC8 (3/3)
MC14053BFR
EE/PB
PB ENV (FM) SIGNAL LINE
REC AFM SIGNAL LINE
REC ATF SIGNAL LINE
PB Y SIGNAL LINE
REC Y & EE Y SIGNAL LINE
PB CHROMA SIGNAL LINE
REC CHROMA & EE CHROMA SIGNAL LINE

*PHOTOGRAPHS DURING PB MODE WERE TAKEN WHEN THE TEST TAPE TF-202CBS WAS BEING PLAYED BACK.
DURING REC MODE, COLOR BAR GENERATOR WAS CONNECTED TO P5 THROUGH THE Y/C SEPARATOR.

PV-MS8
VIDEO
BLOCK DIAGRAM
No.6-1 V301451M
A0


A
B
C
D
E
F
1
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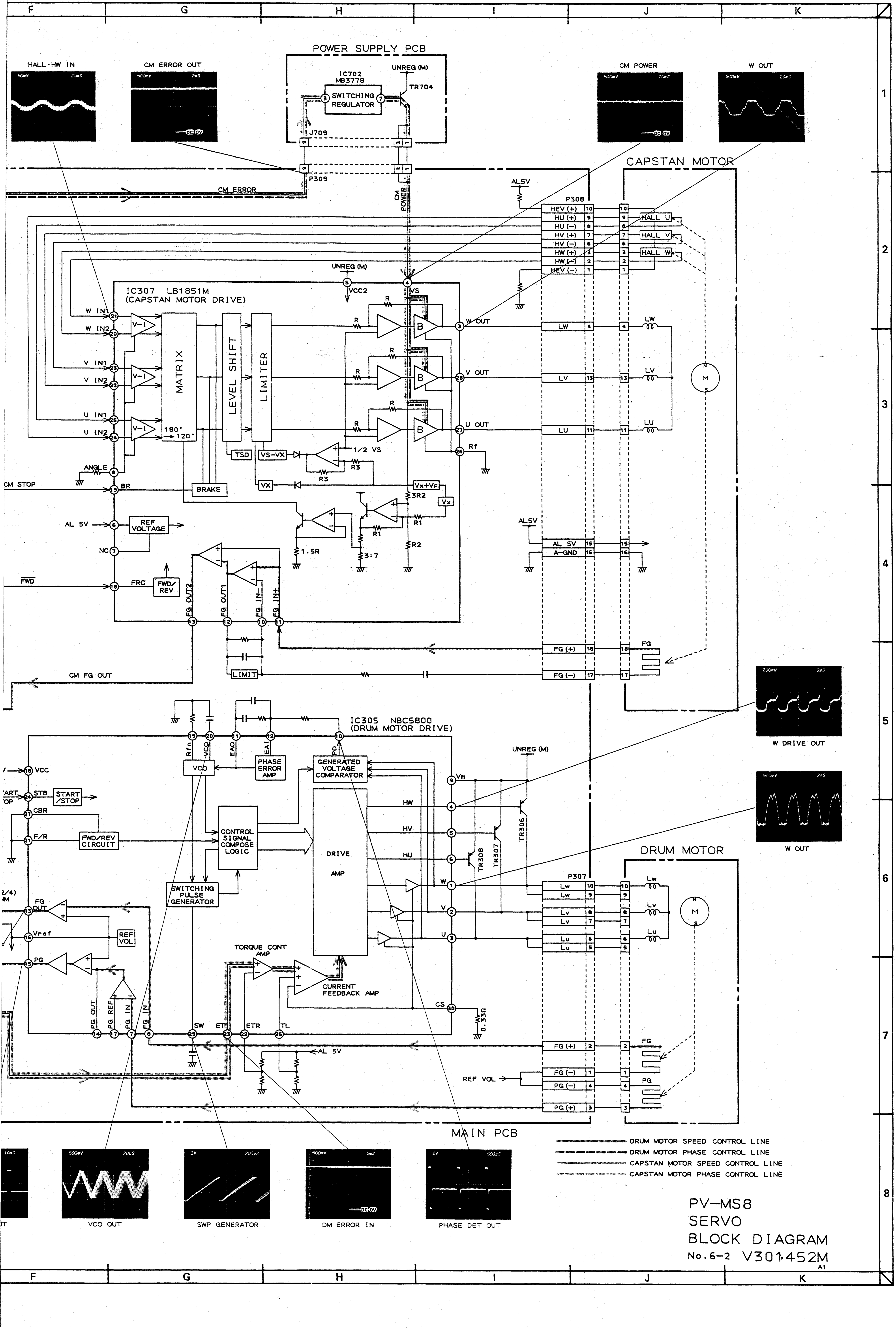
7
8
PRE AMP PCB
REC/PB CIRCUIT
PB ENV
REC SG
P915
J15
PB PRE AMP OUT
PB ATF IN
REC SG OUT
REC LPF OUT
REC ATF OUT
HALL·HW I
TO PB HI-FI AUDIO CIRCUIT
TR73~78
MIX
FROM REC HI-FI AUDIO CIRCUIT
FROM REC CHROMA CIRCUIT
EF
TR301
LPF
AL5V
TR302
2 STATE LPF
IC301 CXA1204Q
(ATF CONTROL)
A GND
PRE AMP
CCA
S/H B
S/H A
PEAK DETECTOR
VREF
VA SCF
B.M
16KHz BPF fH SCF
16KHz BPF 3fHSCF
6dB
1/4 F.D
1/25 F.D
1/M F.D
A.Vcc
D.Vcc
AL 5V
R/P
REC.S
A.GND
SUB
D.GND
X301
5.8594MHz
fH IN
3fH IN
S/H AMP OUT
ATF ERROR IN
ATF LOCK WINDOW
ATF PULSE IN
CAPSTAN FG IN
DRUM FG IN
SCHMIDT AMP
IC302 (3/4~4/4)
LA6324NM
ATF LOCK WINDOW
ATF ERROR
ATF PULSE
REF SELECT 2
REF SELECT 1
SLOW PULSE IN
CM STOP
CM FWD/REV
DM STOP
A/D
FILTER
AMP
P
R
1/2
P/V
1/n
CFG
F/V
REF COUNTER
C SYNC
R
P
CM PWM
PWM
IC306 (4/4)
LA6324NM
IC303 µPD78136GF
(SERVO/SYSCON MI-COM)
DPG
DFG
SW.P
X2
DM PWM
IC306 (3/4)
LA6324NM
IC306 (2/4)
LA6324NM
V-REF
CM STOP
FWD
AL 5V
VCC
STB
H:START
L:STOP
CBR
F/R
FG OUT
Vref
PG
UPPER:REF SELECT1
LOWER:REF SELECT2
CM ERROR OUT
DM ERROR OUT
DM FG OUT
DM PG OUT
100mV 10µS
50mV 500nS
100mV 2µS
200mV 2µS
1V 2µS
50mV
200mV 20µS
200mV 20µS
500mV 10mS
1V 10mS
2V 5mS
2V 10mS
2V 200µS
2V 2mS
2V 20mS
2V
2V 5µS
500mV 2mS
2V 10mS

*SCF: SWITCHED CAPACITOR FILTER
B.M: BALANCED MODULATOR
F.D: FREQUENCY DEMULTIPLIER

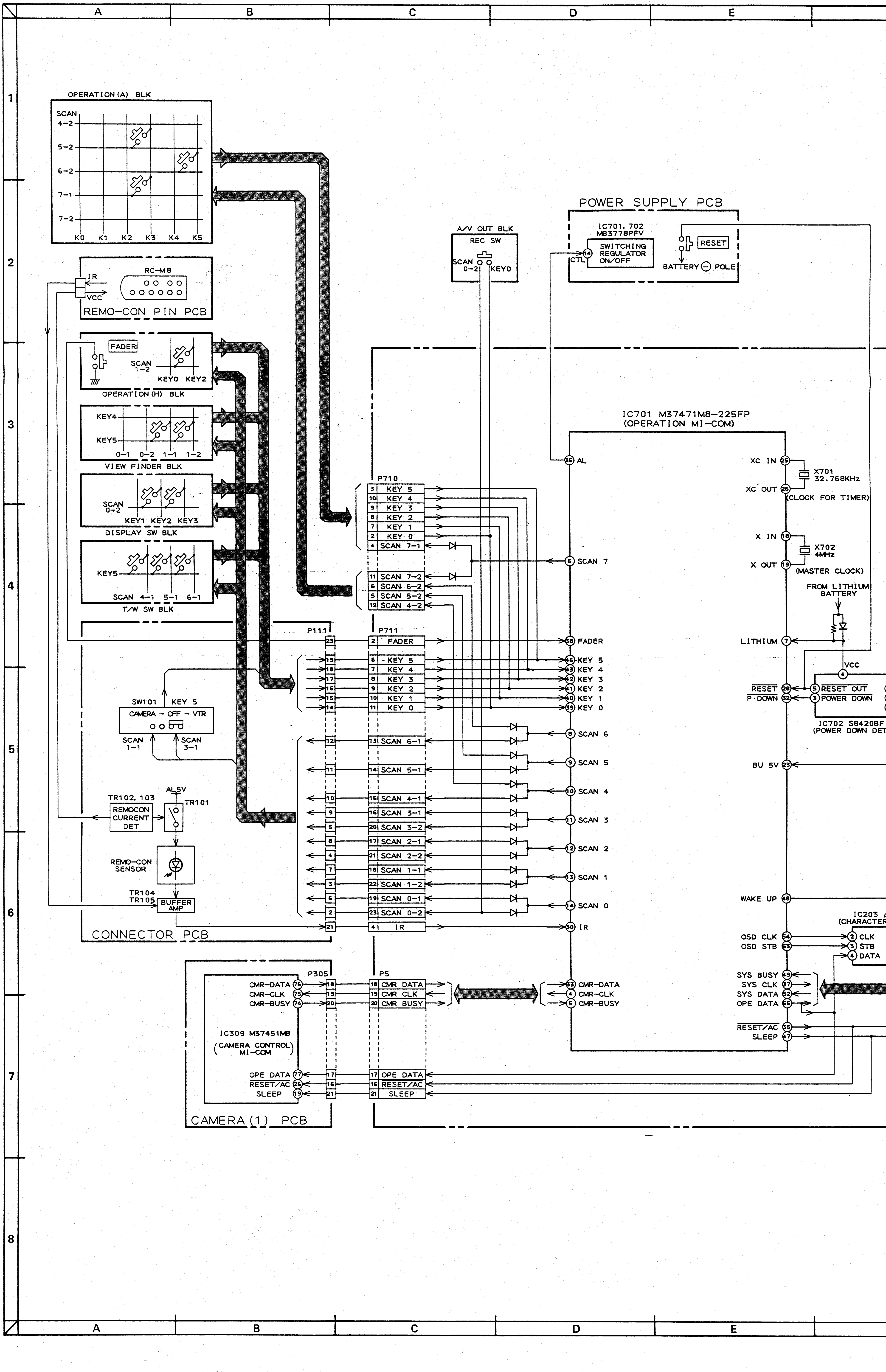
REF SELECT 1	REF SELECT 2	REC REF OUT	DIVIDED RATIO
H	H	f_1 (101.0K)	1/58
L	H	f_2 (117.2K)	1/50
H	L	f_3 (162.8K)	1/36
L	L	f_4 (146.5K)	1/40

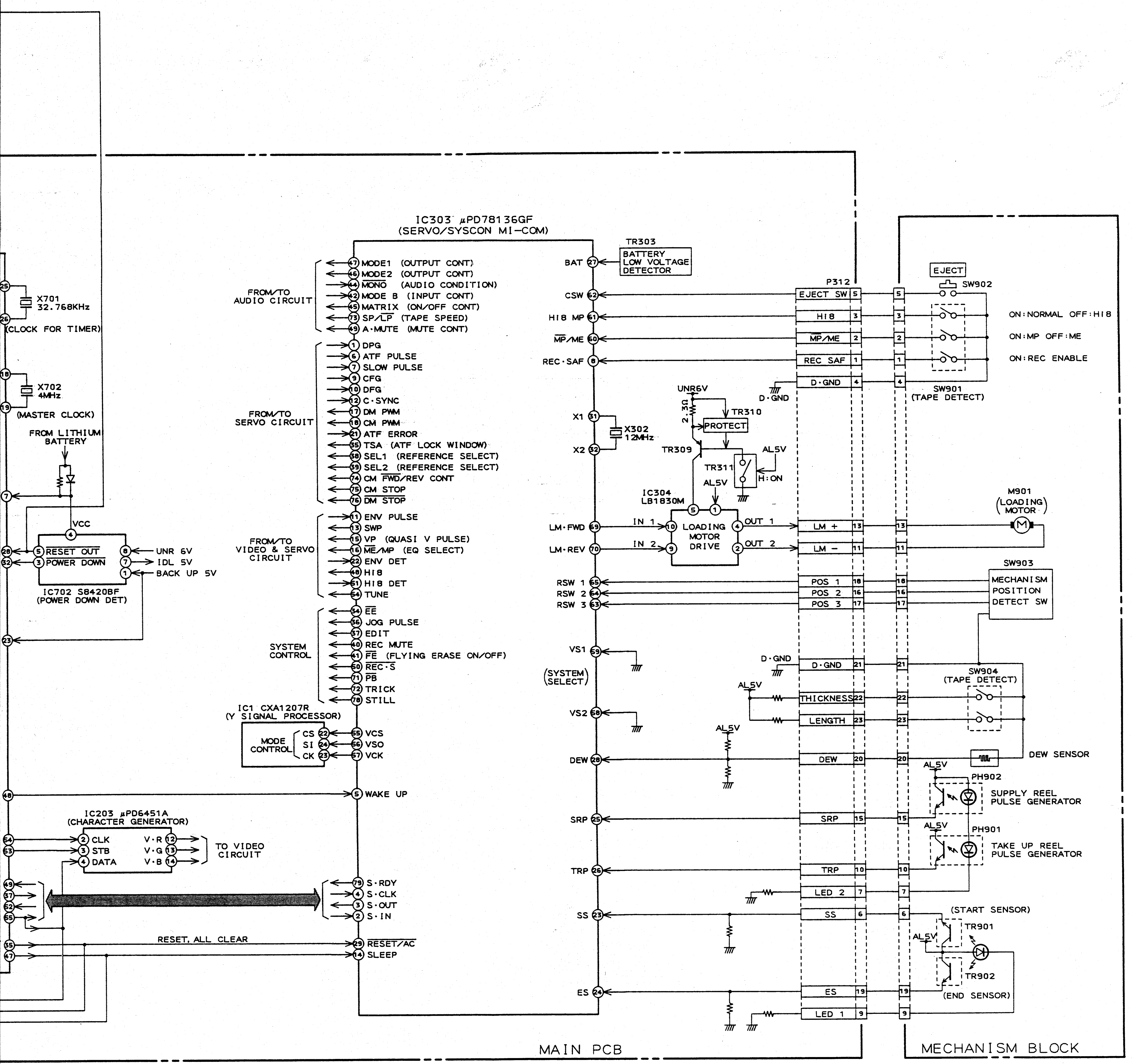


F
G
H
I
J
K
1
2
3
4
5
6
7
8
HALL·HW IN
CM ERROR OUT
POWER SUPPLY PCB
IC702
MB3778
SWITCHING REGULATOR
UNREG (M)
TR704
J709
P309
CM ERROR
CM POWER
CM POWER
W OUT
CAPSTAN MOTOR
AL5V
P308
HEV (+)
HU (+)
HU (–)
HV (+)
HV (–)
HW (+)
HW (–)
HEV (–)
HALL U
HALL V
HALL W
UNREG (M)
VCC2
VS
IC307 LB1851M
(CAPSTAN MOTOR DRIVE)
W IN1
W IN2
V IN1
V IN2
U IN1
U IN2
V–I
MATRIX
180°
→120°
LEVEL SHIFT
LIMITER
R
B
W OUT
V OUT
U OUT
Rf
LW
LV
LU
M
N
S
TSD
VS–VX
1/2 VS
R3
ANGLE
CM STOP
BR
BRAKE
VX
Vx+VF
3R2
Vx
R1
R2
1.5R
3:7
AL 5V
REF VOLTAGE
NC
FWD
FRC
FWD/REV
FG OUT2
FG OUT1
FG IN–
FG IN+
AL 5V
A-GND
FG (+)
FG (–)
FG
CM FG OUT
LIMIT
W DRIVE OUT
IC305 NBC5800
(DRUM MOTOR DRIVE)
Rfn
VCO
EAO
EAI
PD
VCC
STB
START/STOP
CBR
F/R
FWD/REV CIRCUIT
VCO
PHASE ERROR AMP
GENERATED VOLTAGE COMPARATOR
CONTROL SIGNAL COMPOSE LOGIC
DRIVE AMP
SWITCHING PULSE GENERATOR
Vm
HW
HV
HU
UNREG (M)
TR306
TR307
TR308
W
V
U
W OUT
DRUM MOTOR
P307
Lw
Lv
Lu
FG OUT
Vref
REF VOL
PG
TORQUE CONT AMP
CURRENT FEEDBACK AMP
CS
0.33Ω
PG OUT
PG REF
PG IN
FG IN
SW
ET
ETR
TL
AL 5V
REF VOL
FG (+)
FG (–)
PG (–)
PG (+)
PG
MAIN PCB
VCO OUT
SWP GENERATOR
DM ERROR IN
PHASE DET OUT
A1

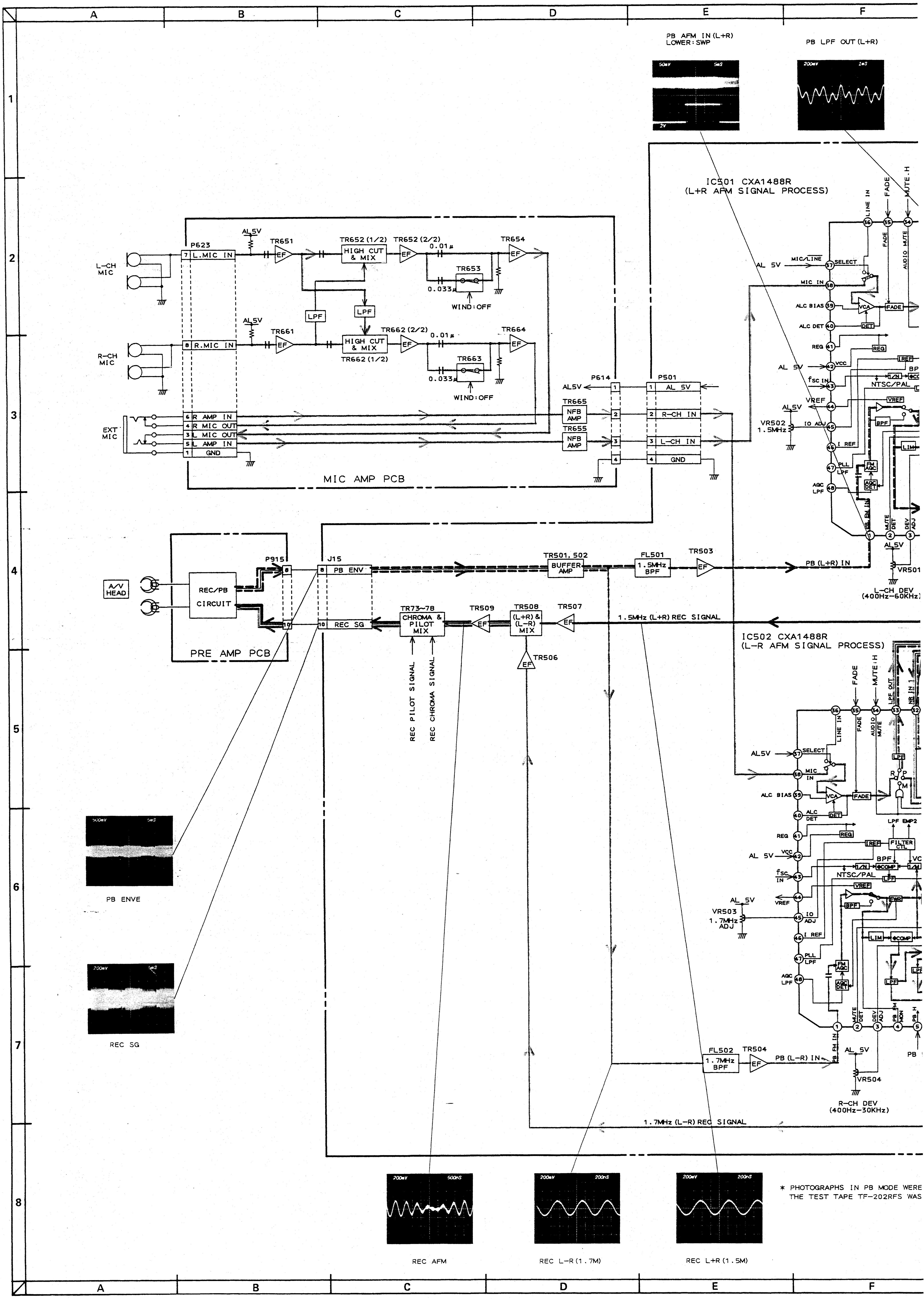
DRUM MOTOR SPEED CONTROL LINE
DRUM MOTOR PHASE CONTROL LINE
CAPSTAN MOTOR SPEED CONTROL LINE
CAPSTAN MOTOR PHASE CONTROL LINE

PV–MS8
SERVO
BLOCK DIAGRAM
No.6–2 V301452M


A
B
C
D
E
1
2
3
4
5
6
7
8
OPERATION (A) BLK
SCAN
4–2
5–2
6–2
7–1
7–2
K0 K1 K2 K3 K4 K5
RC–M8
IR
VCC
REMO–CON PIN PCB
FADER
SCAN 1–2
KEY0 KEY2
OPERATION (H) BLK
KEY4
KEY5
0–1 0–2 1–1 1–2
VIEW FINDER BLK
SCAN 0–2
KEY1 KEY2 KEY3
DISPLAY SW BLK
KEY5
SCAN 4–1 5–1 6–1
T/W SW BLK
P111
SW101 KEY 5
CAMERA – OFF – VTR
SCAN 1–1
SCAN 3–1
TR102, 103
REMOCON CURRENT DET
AL5V
TR101
REMO–CON SENSOR
TR104
TR105
BUFFER AMP
CONNECTOR PCB
A/V OUT BLK
REC SW
SCAN 0–2
KEY0
POWER SUPPLY PCB
IC701, 702
MB3778PFV
SWITCHING REGULATOR ON/OFF
CTL
14
RESET
BATTERY ⊖ POLE
IC701 M37471M8–225FP
(OPERATION MI–COM)
P710
3 KEY 5
10 KEY 4
9 KEY 3
8 KEY 2
7 KEY 1
2 KEY 0
4 SCAN 7–1
11 SCAN 7–2
6 SCAN 6–2
5 SCAN 5–2
12 SCAN 4–2
P711
2 FADER
6 KEY 5
7 KEY 4
8 KEY 3
9 KEY 2
10 KEY 1
11 KEY 0
13 SCAN 6–1
14 SCAN 5–1
15 SCAN 4–1
16 SCAN 3–1
20 SCAN 3–2
17 SCAN 2–1
21 SCAN 2–2
18 SCAN 1–1
22 SCAN 1–2
19 SCAN 0–1
23 SCAN 0–2
4 IR
23 19 18 17 16 15 14 12 11 10 9 5 8 4 7 3 6 2 21
36 AL
6 SCAN 7
58 FADER
46 KEY 5
43 KEY 4
42 KEY 3
41 KEY 2
40 KEY 1
39 KEY 0
8 SCAN 6
9 SCAN 5
10 SCAN 4
11 SCAN 3
12 SCAN 2
13 SCAN 1
14 SCAN 0
30 IR
XC IN 25
XC OUT 26
X701 32.768KHz
(CLOCK FOR TIMER)
X IN 18
X OUT 19
X702 4MHz
(MASTER CLOCK)
FROM LITHIUM BATTERY
LITHIUM 7
VCC
4
RESET 28
P·DOWN 32
5 RESET OUT
3 POWER DOWN
IC702 S8420BF
(POWER DOWN DET
BU 5V 23
WAKE UP 48
IC203
(CHARACTER
OSD CLK 54
OSD STB 53
2 CLK
3 STB
4 DATA
SYS BUSY 49
SYS CLK 57
SYS DATA 62
OPE DATA 65
RESET/AC 35
SLEEP 47
P305
CMR–DATA 76
CMR–CLK 75
CMR–BUSY 74
18 19 20
IC309 M37451MB
(CAMERA CONTROL MI–COM)
OPE DATA 77
RESET/AC 26
SLEEP 19
17 16 21
CAMERA (1) PCB
P5
18 CMR DATA
19 CMR CLK
20 CMR BUSY
17 OPE DATA
16 RESET/AC
21 SLEEP
33 CMR–DATA
4 CMR–CLK
5 CMR–BUSY


IC303 μPD78136GF
(SERVO/SYSCON MI-COM)
MODE1 (OUTPUT CONT)
MODE2 (OUTPUT CONT)
MONO (AUDIO CONDITION)
MODE B (INPUT CONT)
MATRIX (ON/OFF CONT)
SP/LP (TAPE SPEED)
A·MUTE (MUTE CONT)
FROM/TO AUDIO CIRCUIT
DPG
ATF PULSE
SLOW PULSE
CFG
DFG
C·SYNC
DM PWM
CM PWM
ATF ERROR
TSA (ATF LOCK WINDOW)
SEL1 (REFERENCE SELECT)
SEL2 (REFERENCE SELECT)
CM FWD/REV CONT
CM STOP
DM STOP
FROM/TO SERVO CIRCUIT
ENV PULSE
SWP
VP (QUASI V PULSE)
ME/MP (EQ SELECT)
ENV DET
HI8
HI8 DET
TUNE
FROM/TO VIDEO & SERVO CIRCUIT
EE
JOG PULSE
EDIT
REC MUTE
FE (FLYING ERASE ON/OFF)
REC·S
PB
TRICK
STILL
SYSTEM CONTROL
IC1 CXA1207R
(Y SIGNAL PROCESSOR)
MODE CONTROL
CS
SI
CK
VCS
VSO
VCK
WAKE UP
S·RDY
S·CLK
S·OUT
S·IN
RESET/AC
SLEEP
RESET, ALL CLEAR
X701
32.768KHz
(CLOCK FOR TIMER)
X702
4MHz
(MASTER CLOCK)
FROM LITHIUM BATTERY
VCC
RESET OUT
POWER DOWN
UNR 6V
IDL 5V
BACK UP 5V
IC702 S8420BF
(POWER DOWN DET)
IC203 μPD6451A
(CHARACTER GENERATOR)
CLK
STB
DATA
V·R
V·G
V·B
TO VIDEO CIRCUIT
BAT
TR303
BATTERY LOW VOLTAGE DETECTOR
CSW
HI8 MP
MP/ME
REC·SAF
X1
X2
X302
12MHz
UNR6V
2.2Ω
TR310
PROTECT
TR309
TR311
AL5V
H:ON
IC304
LB1830M
LOADING MOTOR DRIVE
IN 1
IN 2
OUT 1
OUT 2
LM·FWD
LM·REV
RSW 1
RSW 2
RSW 3
VS1
(SYSTEM SELECT)
VS2
DEW
SRP
TRP
SS
ES
D·GND
P312
EJECT SW
HI8
MP/ME
REC SAF
D·GND
LM +
LM −
POS 1
POS 2
POS 3
D·GND
THICKNESS
LENGTH
DEW
SRP
TRP
LED 2
SS
ES
LED 1
EJECT
SW902
SW901
(TAPE DETECT)
ON:NORMAL OFF:HI8
ON:MP OFF:ME
ON:REC ENABLE
M901
(LOADING MOTOR)
SW903
MECHANISM POSITION DETECT SW
SW904
(TAPE DETECT)
DEW SENSOR
PH902
SUPPLY REEL PULSE GENERATOR
PH901
TAKE UP REEL PULSE GENERATOR
(START SENSOR)
TR901
TR902
(END SENSOR)
MAIN PCB
MECHANISM BLOCK

PV-MS8
SYSTEM CONTROL
BLOCK DIAGRAM
No.6-3 V301453M
A1



A
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C
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F
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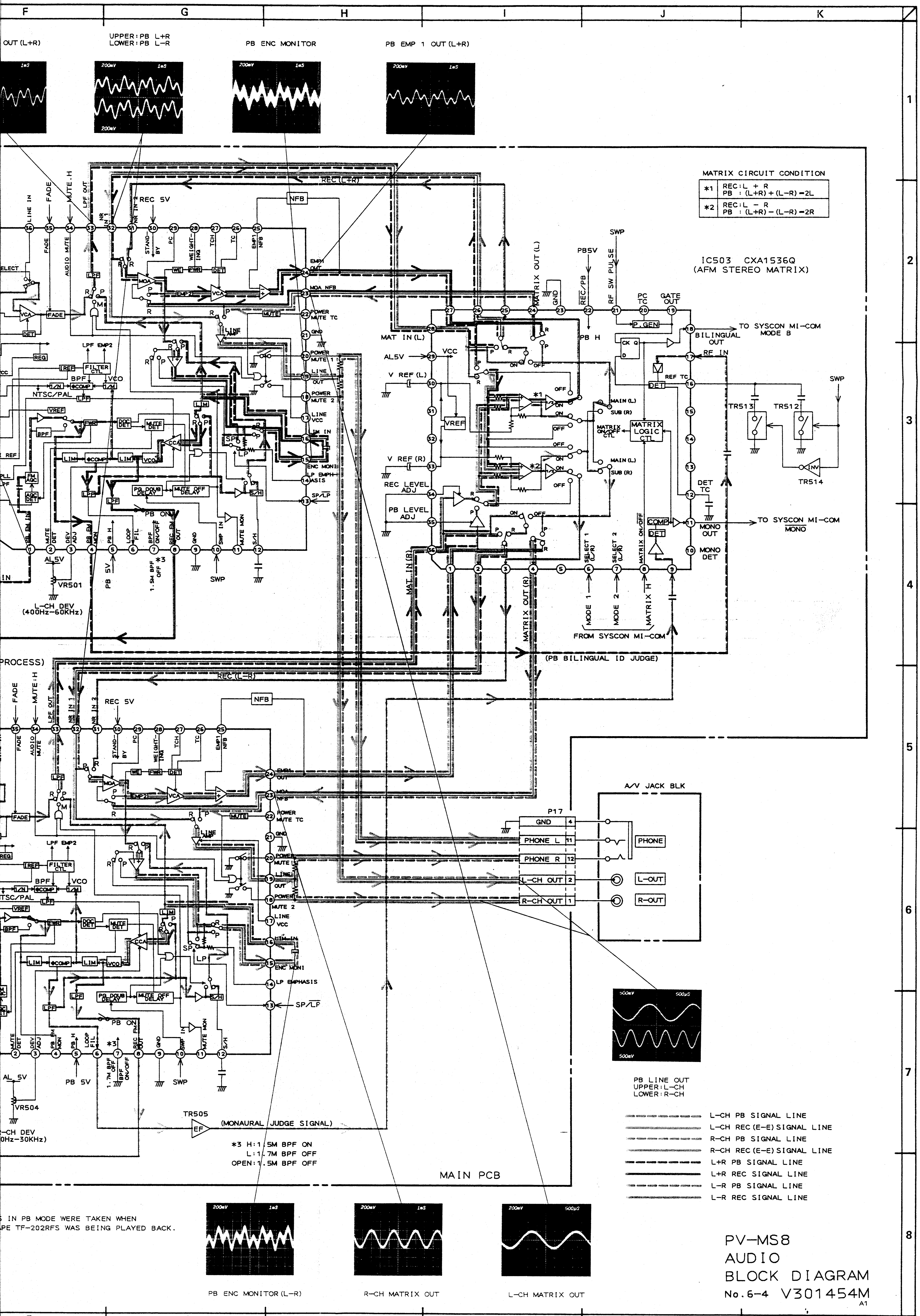
8
PB AFM IN (L+R)
LOWER: SWP
PB LPF OUT (L+R)
IC501 CXA1488R
(L+R AFM SIGNAL PROCESS)
LINE IN
FADE
MUTE.H
AUDIO MUTE
MIC/LINE
SELECT
MIC IN
ALC BIAS
ALC DET
REG
VCC
fsc IN
VREF
IO ADJ
I REF
PLL LPF
AGC LPF
VCA
FADE
DET
BPF
NTSC/PAL
LIM
FM AGC
AGC DET
PB FM IN
MUTE DET
DEV ADJ
AL 5V
VR502
1.5MHz
L-CH MIC
R-CH MIC
EXT MIC
P623
L.MIC IN
R.MIC IN
R AMP IN
R MIC OUT
L MIC OUT
L AMP IN
GND
TR651
EF
TR652 (1/2)
HIGH CUT & MIX
TR652 (2/2)
0.01μ
TR653
0.033μ
WIND: OFF
TR654
LPF
TR661
TR662 (2/2)
TR662 (1/2)
TR663
TR664
TR665
NFB AMP
TR655
P614
AL5V
P501
AL 5V
R-CH IN
L-CH IN
MIC AMP PCB
A/V HEAD
REC/PB CIRCUIT
PRE AMP PCB
P915
J15
PB ENV
REC SG
TR501, 502
BUFFER AMP
FL501
1.5MHz BPF
TR503
PB (L+R) IN
VR501
L-CH DEV
(400Hz–60KHz)
TR73~78
CHROMA & PILOT MIX
TR509
TR508
(L+R) & (L−R) MIX
TR507
TR506
REC PILOT SIGNAL
REC CHROMA SIGNAL
1.5MHz (L+R) REC SIGNAL
IC502 CXA1488R
(L−R AFM SIGNAL PROCESS)
LPF OUT
NR IN
EMP2
FILTER CTL
COMP
PB FM MON
PB H
VR503
1.7MHz ADJ
FL502
1.7MHz BPF
TR504
PB (L−R) IN
VR504
R-CH DEV
(400Hz–30KHz)
1.7MHz (L−R) REC SIGNAL
PB ENVE
REC SG
REC AFM
REC L−R (1.7M)
REC L+R (1.5M)

* PHOTOGRAPHS IN PB MODE WERE
THE TEST TAPE TF-202RFS WAS


F
G
H
I
J
K
1
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3
4
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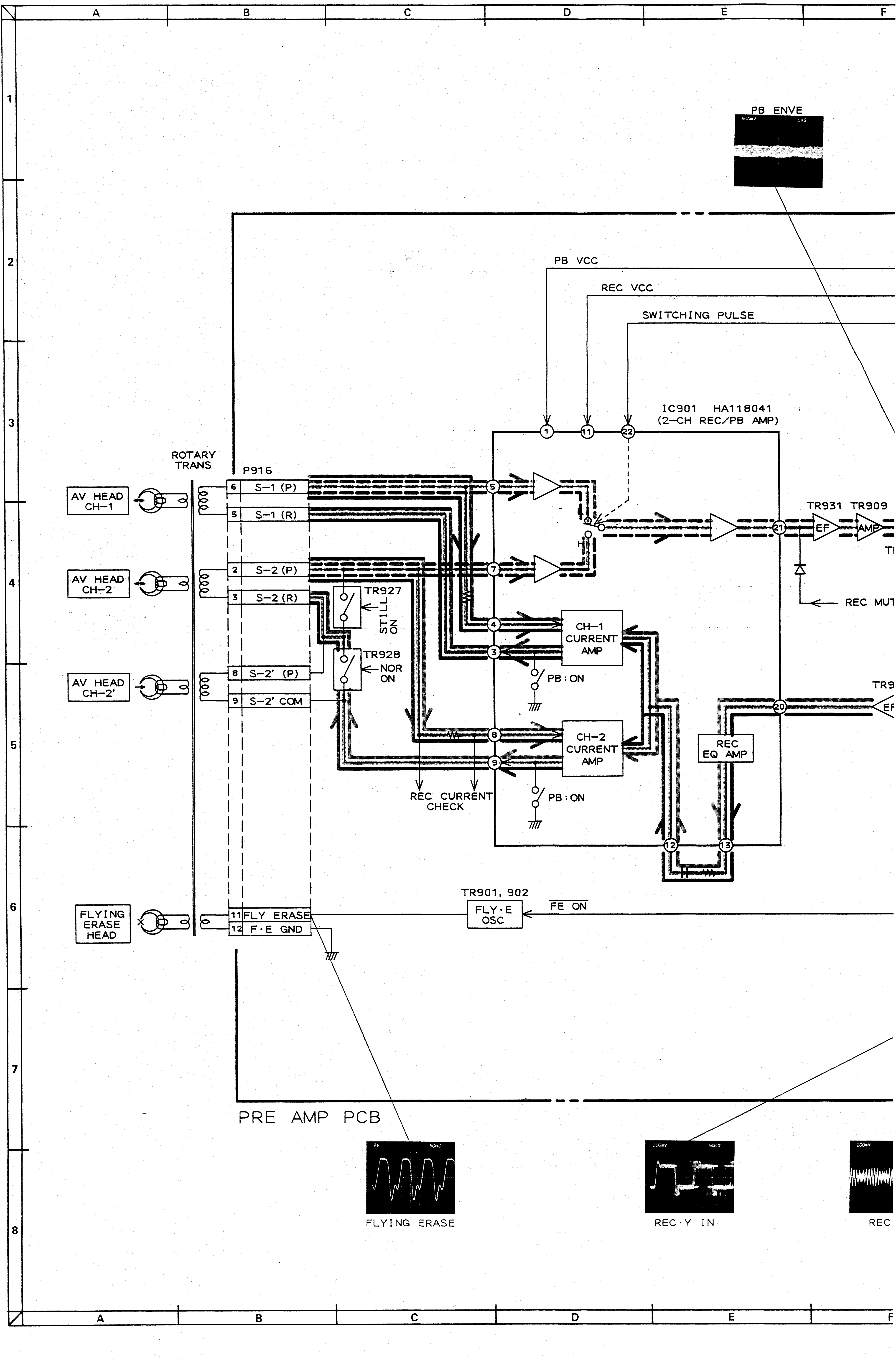
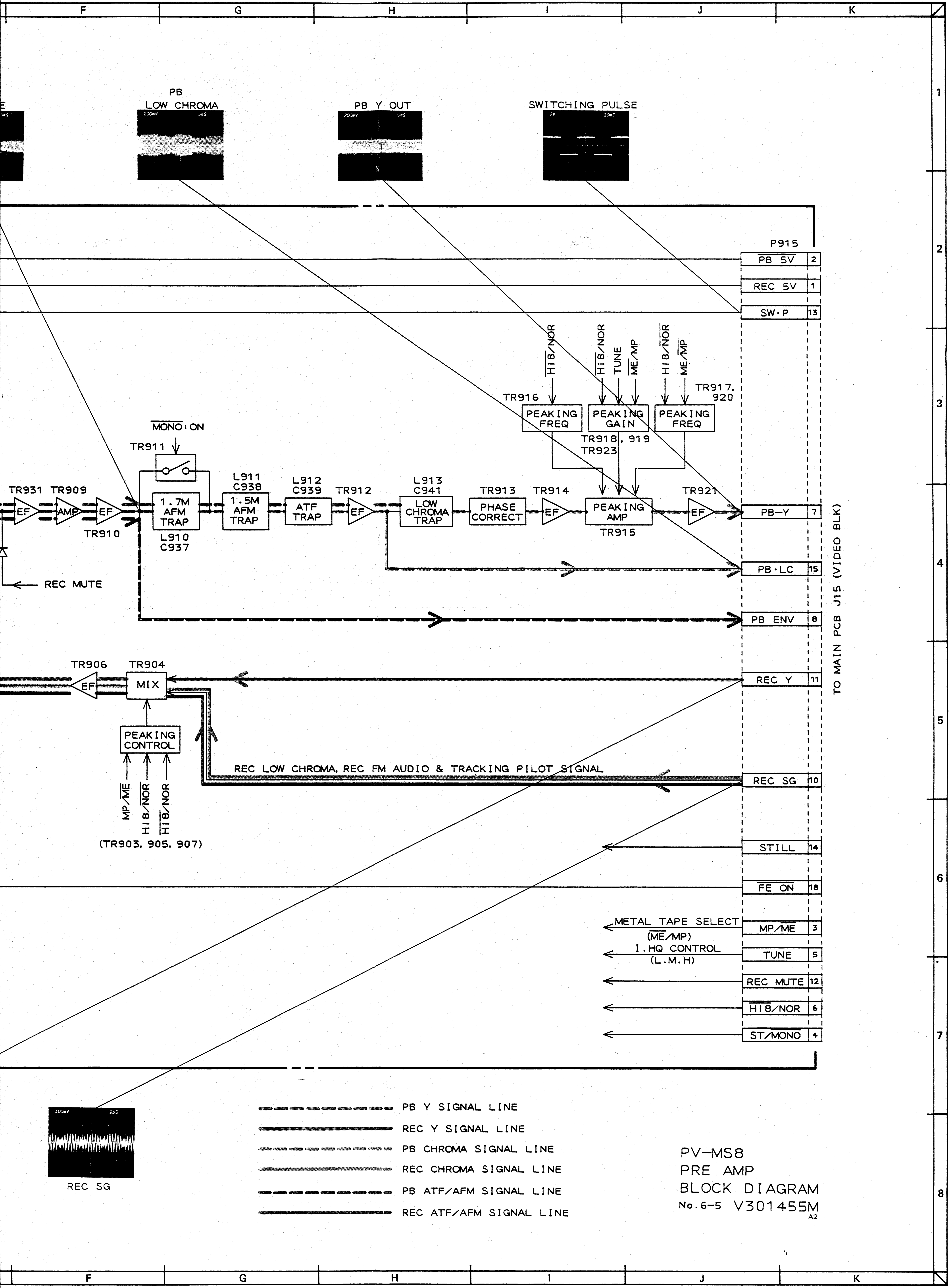
6
7
8
OUT (L+R)
UPPER: PB L+R
LOWER: PB L-R
PB ENC MONITOR
PB EMP 1 OUT (L+R)
MATRIX CIRCUIT CONDITION
*1 REC: L + R
PB : (L+R) + (L-R) = 2L
*2 REC: L - R
PB : (L+R) - (L-R) = 2R
IC503 CXA1536Q
(AFM STEREO MATRIX)
REC (L+R)
NFB
REC 5V
LINE IN
FADE
MUTE.H
LPF OUT
NR IN 1
NR IN 2
AUDIO MUTE
STAND-BY
PC
WEIGHT-ING
TCH
TC
EMP1 NFB
EMPH OUT
MOA NFB
POWER MUTE TC
GND
POWER MUTE 1
LINE OUT
POWER MUTE 2
LINE VCC
LIM IN
ENC MONI
LP EMPH-ASIS
SP/LP
MUTE DET
DEV ADJ
PB FM MON
PB H
LOOP FIL
BPF ON/OFF
REC FM OUT
SWP IN
MUTE MON
S/H
AL5V
PB 5V
1.5M BPF OFF
*3
SWP
VR501
L-CH DEV
(400Hz-60KHz)
MATRIX OUT (L)
GND
PB5V
REC/PB
SWP
RF SW PULSE
PC TC
GATE OUT
P.GEN
TO SYSCON MI-COM
MODE B
BILINGUAL OUT
RF IN
REF TC
MAT IN (L)
AL5V
VCC
V REF (L)
VREF
V REF (R)
REC LEVEL ADJ
PB LEVEL ADJ
MAIN (L)
SUB (R)
MATRIX ON/OFF CTL
MATRIX LOGIC CTL
DET
COMP
MONO OUT
MONO DET
DET TC
TO SYSCON MI-COM
MONO
TR513
TR512
TR514
INV
MAT IN (R)
MATRIX OUT (R)
SELECT 1 (L/R)
SELECT 2 (L/R)
MATRIX ON/OFF
MODE 1
MODE 2
MATRIX H
FROM SYSCON MI-COM
(PB BILINGUAL ID JUDGE)
PROCESS)
REC (L-R)
A/V JACK BLK
P17
GND
PHONE L
PHONE R
L-CH OUT
R-CH OUT
PHONE
L-OUT
R-OUT
VR504
-CH DEV
0Hz-30KHz)
TR505
EF
(MONAURAL JUDGE SIGNAL)
*3 H: 1.5M BPF ON
L: 1.7M BPF OFF
OPEN: 1.5M BPF OFF
MAIN PCB
PB LINE OUT
UPPER: L-CH
LOWER: R-CH
L-CH PB SIGNAL LINE
L-CH REC (E-E) SIGNAL LINE
R-CH PB SIGNAL LINE
R-CH REC (E-E) SIGNAL LINE
L+R PB SIGNAL LINE
L+R REC SIGNAL LINE
L-R PB SIGNAL LINE
L-R REC SIGNAL LINE
PB ENC MONITOR (L-R)
R-CH MATRIX OUT
L-CH MATRIX OUT

S IN PB MODE WERE TAKEN WHEN
PE TF-202RFS WAS BEING PLAYED BACK.

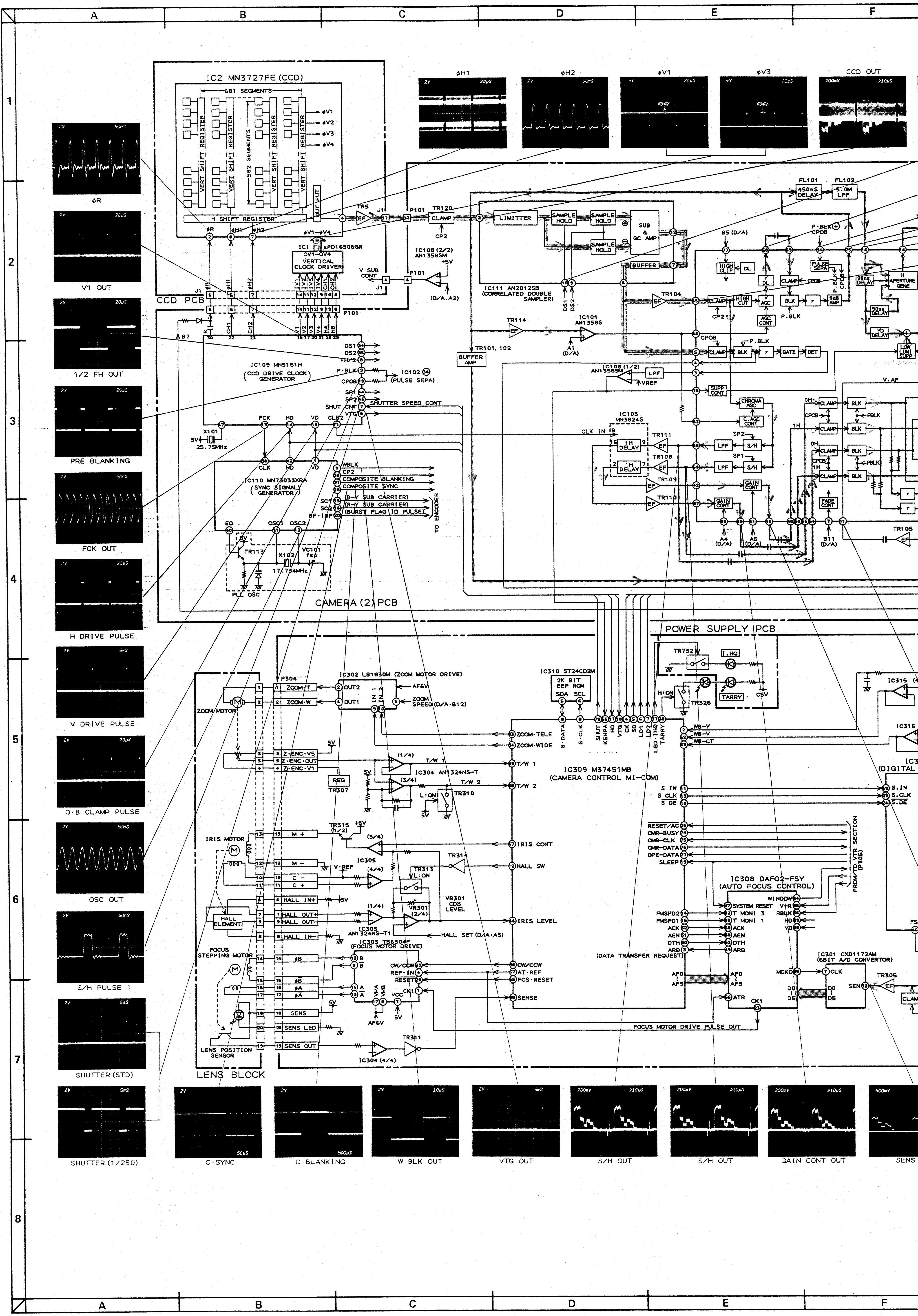
PV-MS8
AUDIO
BLOCK DIAGRAM
No.6-4 V301454M
A1

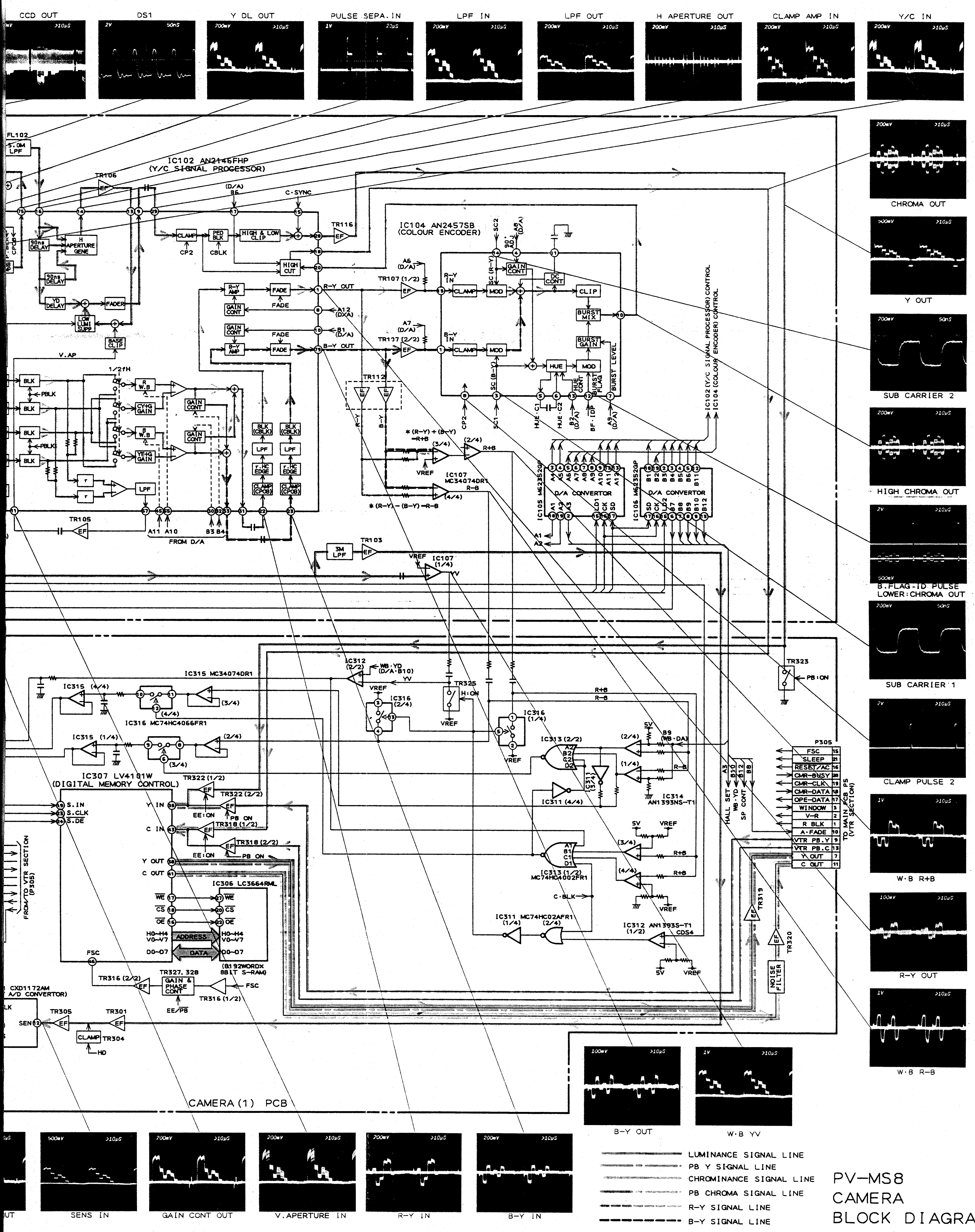

A
B
C
D
E
F
1
2
3
4
5
6
7
8
PB ENVE
PB VCC
REC VCC
SWITCHING PULSE
IC901 HA118041
(2-CH REC/PB AMP)
ROTARY TRANS
P916
AV HEAD CH-1
AV HEAD CH-2
AV HEAD CH-2'
FLYING ERASE HEAD
6 S-1 (P)
5 S-1 (R)
2 S-2 (P)
3 S-2 (R)
8 S-2' (P)
9 S-2' COM
11 FLY ERASE
12 F·E GND
TR927
STILL ON
TR928
NOR ON
CH-1 CURRENT AMP
CH-2 CURRENT AMP
PB : ON
PB : ON
REC CURRENT CHECK
REC EQ AMP
TR931 TR909
EF
AMP
REC MUT
TR9
EF
1
11
22
5
7
21
4
3
8
9
20
12
13
TR901, 902
FLY·E OSC
FE ON
PRE AMP PCB
FLYING ERASE
REC·Y IN
REC



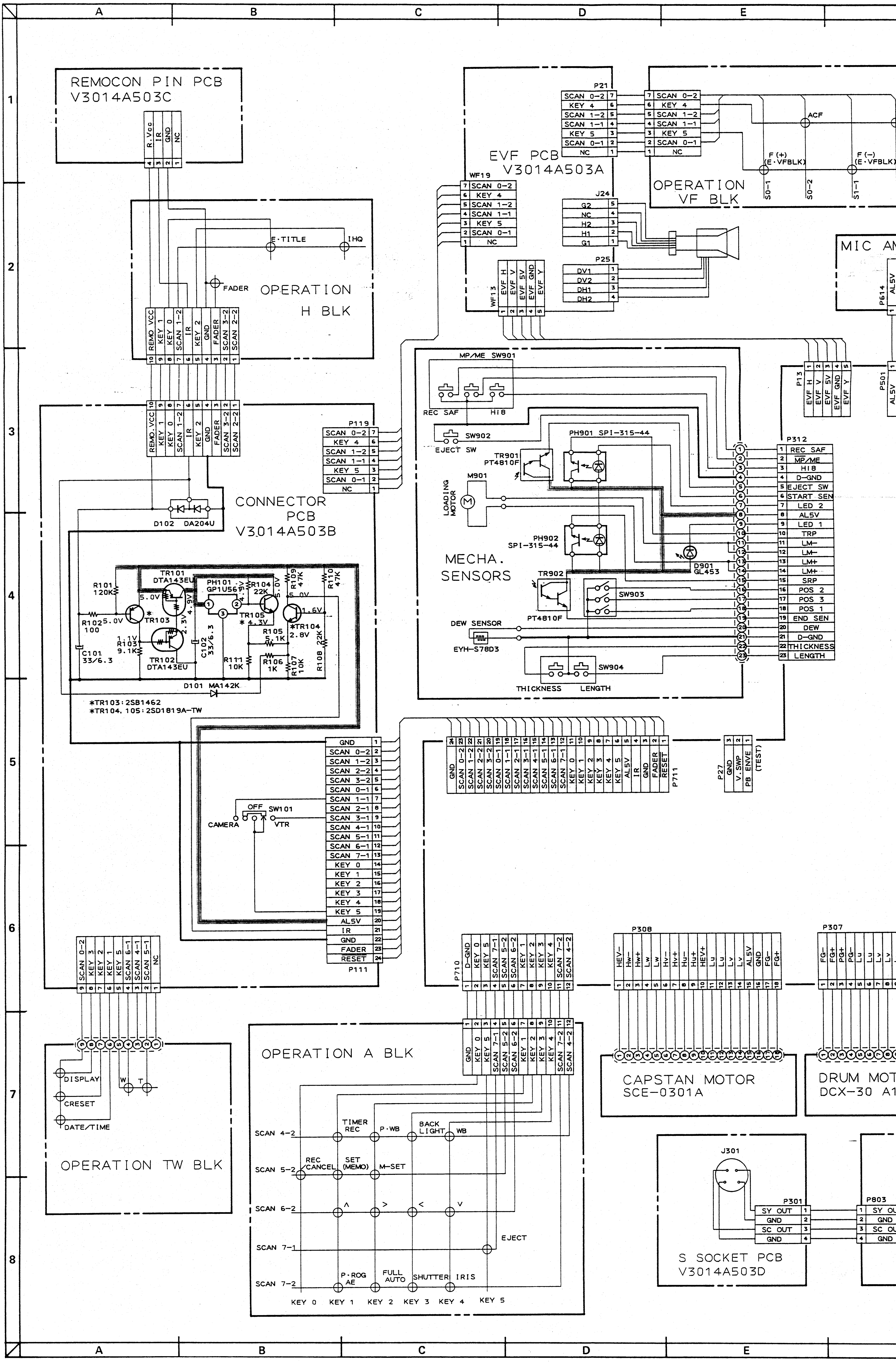
F
G
H
I
J
K
1
2
3
4
5
6
7
8
PB
LOW CHROMA
PB Y OUT
SWITCHING PULSE
P915
PB 5V 2
REC 5V 1
SW·P 13
HI8/NOR
HI8/NOR
TUNE
ME/MP
HI8/NOR
ME/MP
TR916
TR917, 920
PEAKING FREQ
PEAKING GAIN
PEAKING FREQ
TR918, 919
TR923
MONO:ON
TR911
TR931
TR909
EF
AMP
EF
TR910
1.7M AFM TRAP
L910
C937
L911
C938
1.5M AFM TRAP
L912
C939
ATF TRAP
TR912
EF
L913
C941
LOW CHROMA TRAP
TR913
PHASE CORRECT
TR914
EF
PEAKING AMP
TR915
TR921
EF
PB-Y 7
PB·LC 15
PB ENV 8
REC MUTE
TO MAIN PCB J15 (VIDEO BLK)
TR906
TR904
EF
MIX
PEAKING CONTROL
MP/ME
HI8/NOR
HI8/NOR
(TR903, 905, 907)
REC Y 11
REC LOW CHROMA, REC FM AUDIO & TRACKING PILOT SIGNAL
REC SG 10
STILL 14
FE ON 18
METAL TAPE SELECT
(ME/MP)
MP/ME 3
I.HQ CONTROL
(L.M.H)
TUNE 5
REC MUTE 12
HI8/NOR 6
ST/MONO 4
REC SG
PB Y SIGNAL LINE
REC Y SIGNAL LINE
PB CHROMA SIGNAL LINE
REC CHROMA SIGNAL LINE
PB ATF/AFM SIGNAL LINE
REC ATF/AFM SIGNAL LINE

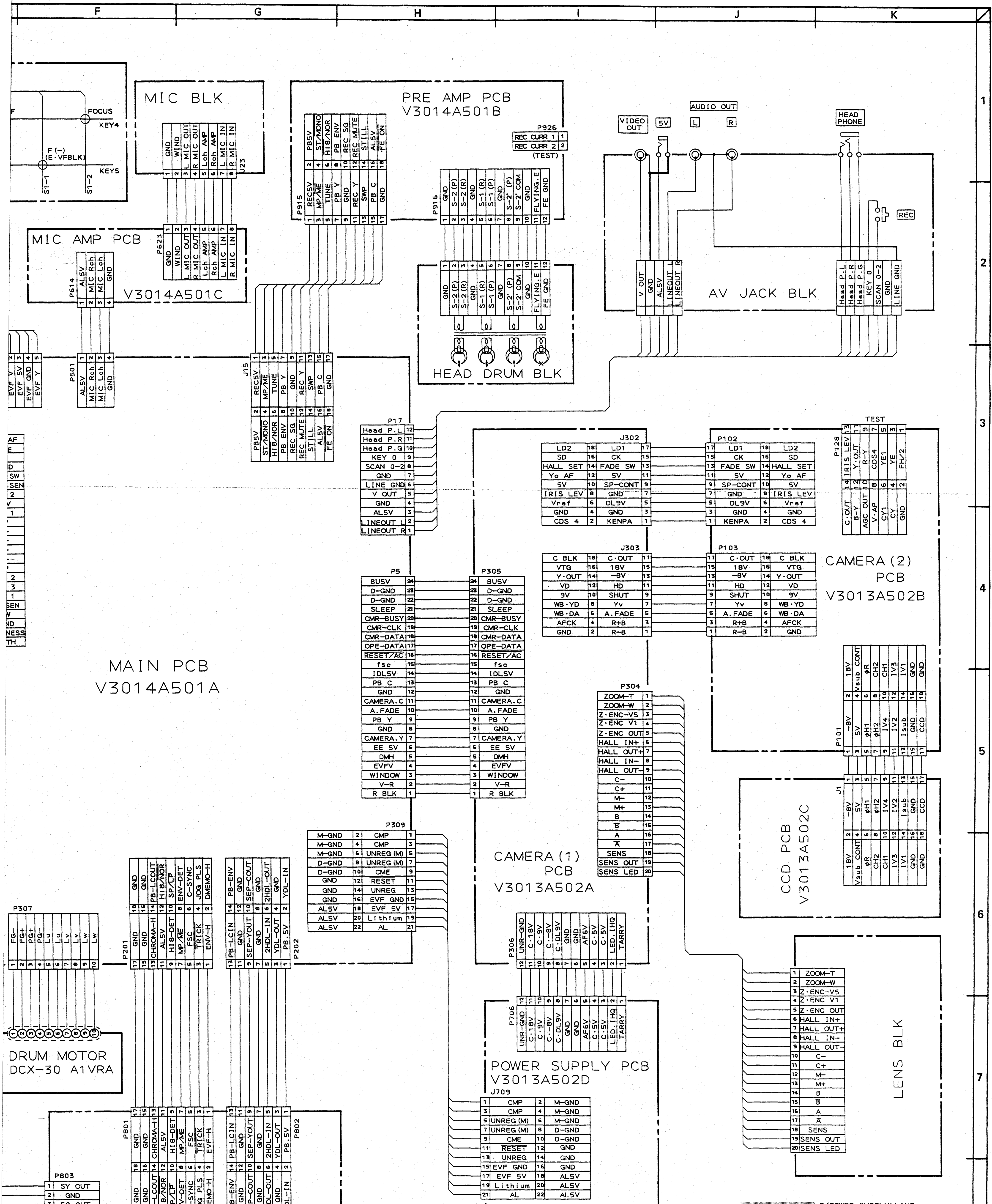
PV-MS8
PRE AMP
BLOCK DIAGRAM
No.6-5 V301455M
A2


IC2 MN3727FE (CCD)
681 SEGMENTS
582 SEGMENTS
VERT SHIFT REGISTER
H SHIFT REGISTER
OUT PUT
CCD PCB
IC1 μPD16506GR
ØV1~ØV4 VERTICAL CLOCK DRIVER
IC109 MN5181H (CCD DRIVE CLOCK GENERATOR)
SHUTTER SPEED CONT
X101 25.75MHz
IC110 MN73033XRA (SYNC SIGNAL GENERATOR)
COMPOSITE BLANKING
COMPOSITE SYNC
(B-Y SUB CARRIER)
(R-Y SUB CARRIER)
(BURST FLAG(ID PULSE))
TO ENCODER
TR113
X102 17.734MHz
VC101 fsc
PLL OSC
CAMERA (2) PCB
TR5
TR120
CLAMP
LIMITTER
SAMPLE HOLD
SUB & GC AMP
BUFFER
IC111 AN2012SB (CORRELATED DOUBLE SAMPLER)
IC108 (2/2) AN1358SM
IC101 AN1358S
IC108 (1/2) AN1358SM
TR101, 102 BUFFER AMP
TR114
TR104
FL101 450nS DELAY
FL102 5.0M LPF
HIGH CLIP
AGC CONT
PULSE SEPA
9dB AMP
H APERTURE GENE
YD DELAY
LOW LUMI SUPP
GATE
DET
SUPP CONT
CHROMA AGC
C.AGC CONT
IC103 MN3824S
1H DELAY
TR111
TR108
TR109
TR110
GAIN CONT
FADE CONT
V.AP
TR105
POWER SUPPLY PCB
TR732
TR326
TARRY
IC310 ST24C02M 2K BIT EEP ROM
IC302 LB1830M (ZOOM MOTOR DRIVE)
ZOOM MOTOR
ZOOM SPEED (D/A-B12)
IC304 AN1324NS-T
TR307 REG
TR310
IC309 M37451MB (CAMERA CONTROL MI-COM)
ZOOM·TELE
ZOOM·WIDE
T/W 1
T/W 2
IRIS MOTOR
TR315 (1/2)
IC305
TR314
TR313
IRIS CONT
HALL SW
VR301 CDS LEVEL
IRIS LEVEL
HALL ELEMENT
IC305 AN1324NS-T1
HALL SET (D/A-A3)
IC303 TB6504F (FOCUS MOTOR DRIVE)
FOCUS STEPPING MOTOR
CW/CCW
AT·REF
FCS·RESET
SENSE
LENS POSITION SENSOR
TR311
IC304 (4/4)
LENS BLOCK
IC308 DAF02-FSY (AUTO FOCUS CONTROL)
(DATA TRANSFER REQUEST)
FROM/TO VTR SECTION (P305)
FOCUS MOTOR DRIVE PULSE OUT
IC301 CXD1172AM (6BIT A/D CONVERTOR)
TR305
IC315
ØH1
ØH2
ØV1
ØV3
CCD OUT
ØR
V1 OUT
1/2 FH OUT
PRE BLANKING
FCK OUT
H DRIVE PULSE
V DRIVE PULSE
O·B CLAMP PULSE
OSC OUT
S/H PULSE 1
SHUTTER (STD)
SHUTTER (1/250)
C·SYNC
C·BLANKING
W BLK OUT
VTG OUT
S/H OUT
S/H OUT
GAIN CONT OUT
SENS
A
B
C
D
E
F
1
2
3
4
5
6
7
8


CCD OUT
DS1
Y DL OUT
PULSE SEPA.IN
LPF IN
LPF OUT
H APERTURE OUT
CLAMP AMP IN
Y/C IN
CHROMA OUT
Y OUT
SUB CARRIER 2
HIGH CHROMA OUT
B.FLAG-ID PULSE
LOWER:CHROMA OUT
SUB CARRIER 1
CLAMP PULSE 2
W·B R+B
R-Y OUT
W·B R-B
B-Y OUT
W·B YV
SENS IN
GAIN CONT OUT
V.APERTURE IN
R-Y IN
B-Y IN
FL102
5.0M LPF
IC102 AN2146FHP
(Y/C SIGNAL PROCESSOR)
TR106
EF
C·SYNC
(D/A) B6
CLAMP
PED BLK
HIGH & LOW CLIP
CP2
CBLK
TR116
HIGH CUT
90ns DELAY
H APERTURE GENE
YD DELAY
LOW LUMI SUPP
FADER
BASE CLIP
V.AP
R-Y AMP
FADE
GAIN CONT
B-Y AMP
R-Y OUT
B-Y OUT
A12 (D/A)
B1 (D/A)
1/2fH
BLK
PBLK
R W.B
CY+G GAIN
B W.B
YE+G GAIN
LPF
BLK (CBLK)
r.HC EDGE
CLAMP (CPOB)
TR105
A11 A10
B3 B4
FROM D/A
IC104 AN2457SB
(COLOUR ENCODER)
SC2
90° ADJ
A5 (D/A)
A6 (D/A)
A7 (D/A)
TR107 (1/2)
TR107 (2/2)
R-Y IN
B-Y IN
MOD
GAIN CONT
DC CONT
CLIP
BURST MIX
BURST GAIN
BURST LEVEL
HUE
SC (R-Y)
SC (B-Y)
HUE C1
HUE C2
B2 (D/A)
BF·ID
A9 (D/A)
HUE CONT
BURST FLAG
TR112
R-Y
B-Y
SC1
*(R-Y)+(B-Y) =R+B
*(R-Y)-(B-Y)=R-B
IC107 MC34074DR1
VREF
R+B
R-B
IC102 (Y/C SIGNAL PROCESSOR) CONTROL
IC104 (COLOUR ENCODER) CONTROL
IC105 M62352GP
IC106 M62352GP
D/A CONVERTOR
SD CK LD1 LD2
3M LPF
TR103
IC107 (1/4)
YV
IC315 MC34074DR1
IC315 (4/4)
IC315 (1/4)
IC316 MC74HC4066FR1
IC312 (2/2)
WB·YD (D/A·B10)
TR325
H:ON
IC316 (2/4)
IC316 (1/4)
IC313 (2/2)
B9 (WB·DA)
IC311 (4/4)
IC314 AN1393NS-T1
IC307 LV4101W
(DIGITAL MEMORY CONTROL)
S.IN
S.CLK
S.DE
Y IN
C IN
Y OUT
C OUT
TR322 (1/2)
TR322 (2/2)
EE:ON
PB ON
TR318 (1/2)
TR318 (2/2)
IC306 LC3664RML
WE CS OE
H0-H4 V0-V7
D0-D7
ADDRESS
DATA
(8192WORDX 8BIT S-RAM)
FSC
TR316 (2/2)
TR316 (1/2)
TR327, 328
GAIN & PHASE CONT
EE/PB
IC313 (1/2)
MC74HC4002FR1
C·BLK
IC311 MC74HC02AFR1
IC312 AN1393S-T1
CDS4
5V
TR319
TR320
NOISE FILTER
TR323
PB:ON
P305
FSC
SLEEP
RESET/AC
CMR-BUSY
CMR-CLK
CMR-DATA
OPE-DATA
WINDOW
V-R
R BLK
A·FADE
VTR PB.Y
VTR PB.C
Y OUT
C OUT
TO MAIN PCB P5 (VTR SECTION)
HALL SET
WB·YD
SP CONT
FROM/TO VTR SECTION (P305)
CXD1172AM
A/D CONVERTOR)
TR305
TR301
TR304
CLAMP
HD
SEN
CAMERA (1) PCB
LUMINANCE SIGNAL LINE
PB Y SIGNAL LINE
CHROMINANCE SIGNAL LINE
PB CHROMA SIGNAL LINE
R-Y SIGNAL LINE
B-Y SIGNAL LINE

PV-MS8
CAMERA
BLOCK DIAGRAM
No.6-6 V301456M
A0


A
B
C
D
E
1
2
3
4
5
6
7
8
REMOCON PIN PCB
V3014A503C
R.Vcc
IR
GND
NC
E·TITLE
IHQ
FADER
OPERATION H BLK
REMO VCC
KEY 1
KEY 0
SCAN 1-2
IR
KEY 2
GND
FADER
SCAN 3-2
SCAN 2-2
CONNECTOR PCB
V3014A503B
D102 DA204U
P119
SCAN 0-2
KEY 4
SCAN 1-2
SCAN 1-1
KEY 5
SCAN 0-1
NC
TR101 DTA143EU
PH101 GP1U561
R101 120K
R102 100
R103 9.1K
C101 33/6.3
TR103
TR102 DTA143EU
C102 33/6.3
R104 22K
R109 47K
R110 47K
TR105
TR104
R105 5.1K
R111 10K
R106 1K
R107 10K
R108 22K
D101 MA142K
*TR103: 2SB1462
*TR104, 105: 2SD1819A-TW
5.0V
4.9V
2.3V
1.1V
4.3V
2.8V
1.6V
CAMERA
OFF
SW101
VTR
GND
SCAN 0-2
SCAN 1-2
SCAN 2-2
SCAN 3-2
SCAN 0-1
SCAN 1-1
SCAN 2-1
SCAN 3-1
SCAN 4-1
SCAN 5-1
SCAN 6-1
SCAN 7-1
KEY 0
KEY 1
KEY 2
KEY 3
KEY 4
KEY 5
AL5V
IR
GND
FADER
RESET
P111
SCAN 0-2
KEY 3
KEY 2
KEY 1
KEY 5
SCAN 6-1
SCAN 4-1
SCAN 5-1
NC
DISPLAY
CRESET
DATE/TIME
W
T
OPERATION TW BLK
EVF PCB
V3014A503A
P21
WF19
J24
G2
NC
H2
H1
G1
P25
DV1
DV2
DH1
DH2
WF13
EVF H
EVF V
EVF 5V
EVF GND
EVF Y
OPERATION VF BLK
ACF
F(+) (E·VFBLK)
F(−) (E·VFBLK)
S0-1
S0-2
S1-1
MIC AN
P614
AL5V
P13
P501
MP/ME SW901
REC SAF
HI8
SW902
EJECT SW
PH901 SPI-315-44
TR901 PT4810F
M901
LOADING MOTOR
PH902 SPI-315-44
MECHA. SENSORS
TR902
D901 GL453
SW903
PT4810F
DEW SENSOR
EYH-S78D3
SW904
THICKNESS
LENGTH
P312
REC SAF
MP/ME
HI8
D-GND
EJECT SW
START SEN
LED 2
AL5V
LED 1
TRP
LM−
LM−
LM+
LM+
SRP
POS 2
POS 3
POS 1
END SEN
DEW
D-GND
THICKNESS
LENGTH
P711
GND
SCAN 0-2
SCAN 1-2
SCAN 2-2
SCAN 3-2
SCAN 0-1
SCAN 1-1
SCAN 2-1
SCAN 3-1
SCAN 4-1
SCAN 5-1
SCAN 6-1
SCAN 7-1
KEY 0
KEY 1
KEY 2
KEY 3
KEY 4
KEY 5
AL5V
IR
GND
FADER
RESET
P27
GND
V.SWP
PB ENVE
(TEST)
P710
D-GND
KEY 0
KEY 5
SCAN 7-1
SCAN 5-2
SCAN 6-2
KEY 1
KEY 2
KEY 3
KEY 4
SCAN 7-2
SCAN 4-2
OPERATION A BLK
SCAN 4-2
SCAN 5-2
SCAN 6-2
SCAN 7-1
SCAN 7-2
TIMER REC
P·WB
BACK LIGHT
WB
REC CANCEL
SET (MEMO)
M-SET
∧
>
<
∨
EJECT
P·ROG AE
FULL AUTO
SHUTTER
IRIS
KEY 0
KEY 1
KEY 2
KEY 3
KEY 4
KEY 5
P308
HEV−
Hw−
Hw+
Lw
Hv−
Hv+
Hu−
Hu+
HEV+
Lu
Lu
Lv
AL5V
GND
FG−
FG+
CAPSTAN MOTOR
SCE-0301A
P307
FG−
FG+
PG+
PG−
DRUM MOT
DCX-30 A1
J301
P301
SY OUT
GND
SC OUT
GND
P803
S SOCKET PCB
V3014A503D

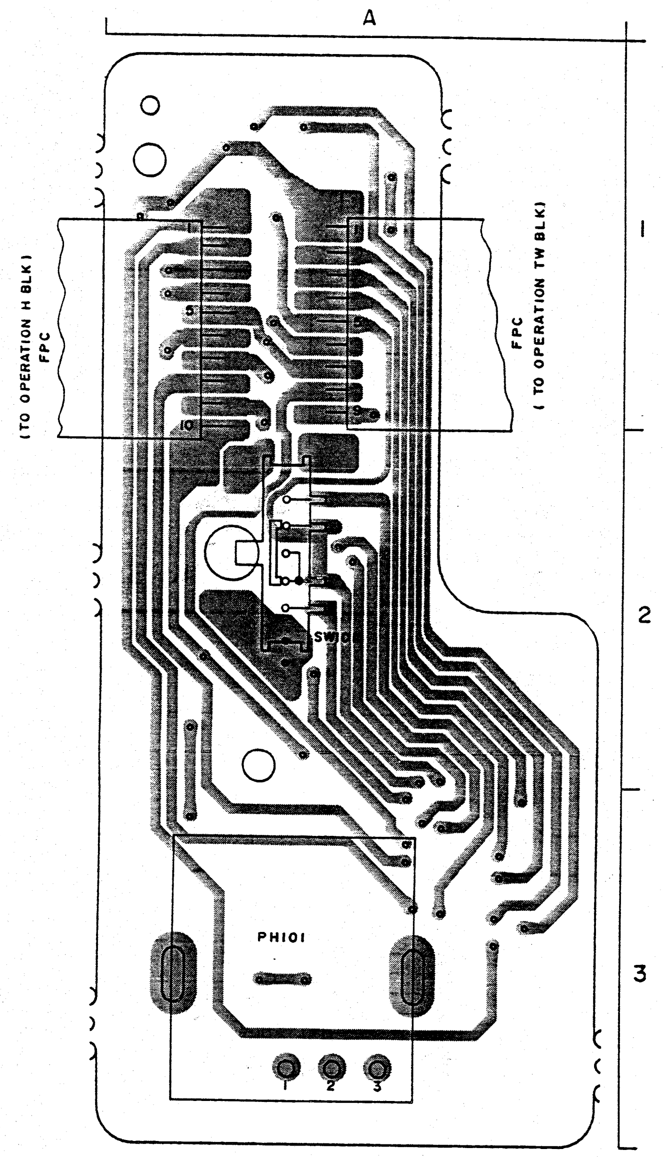


F
G
H
I
J
K
1
2
3
4
5
6
7
8
MIC BLK
J23
FOCUS
KEY4
F (-)
(E·VFBLK)
KEY5
S1-1
S1-2
MIC AMP PCB
V3014A501C
P623
P614
PRE AMP PCB
V3014A501B
P915
P916
P926
REC CURR 1
REC CURR 2
(TEST)
HEAD DRUM BLK
VIDEO OUT
5V
AUDIO OUT
L
R
HEAD PHONE
REC
AV JACK BLK
P501
J15
P17
MAIN PCB
V3014A501A
P5
P305
J302
P102
TEST
P128
J303
P103
CAMERA (2) PCB
V3013A502B
P304
P101
J1
CCD PCB
V3013A502C
P309
CAMERA (1) PCB
V3013A502A
P306
P706
POWER SUPPLY PCB
V3013A502D
J709
LENS BLK
P307
P201
P202
DRUM MOTOR
DCX-30 A1VRA
P801
P802
P803
SY OUT
GND
SC OUT
GND
Hi8 SUB PCB
V3014A501D
B (POWER SUPPLY) LINE

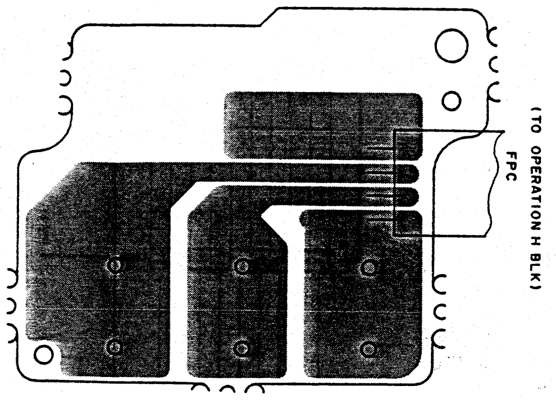
INDICATED VOLTAGES WERE
MEASURED DURING PB MODE.
(TAPE SPEED:SP)

NOTE:
UNLESS OTHERWISE SPECIFIED
ALL RESISTORS IN OHMS
ALL CAPACITORS IN μF (P=PF)
ALL ELECTROLYTIC CAPACITORS IN μF/WV

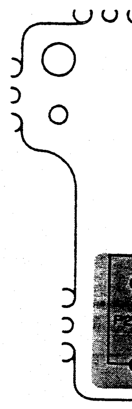
PV-MS8
CONNECTION DIAGRAM
No.13-1 V301401M
A1


A
1
2
3
(TO OPERATION H BLK)
FPC
FPC
(TO OPERATION TW BLK)
5
10
SW
PHI01
1
2
3

CONNECTOR PCB V3014A503BJI
(TOP)


(TO OPERATION H BLK)
FPC

REMOCON PIN PCB V3014A503CJI
(BOTTOM)



REM

PRINCIPAL PARTS LOCATION

DIODEs

D101	A2
D102	A2

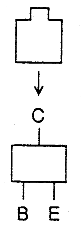
TRANSISTORs

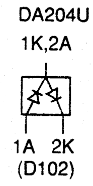
TR101	A3
TR102	A3
TR103	A3
TR104	A2
TR105	A3

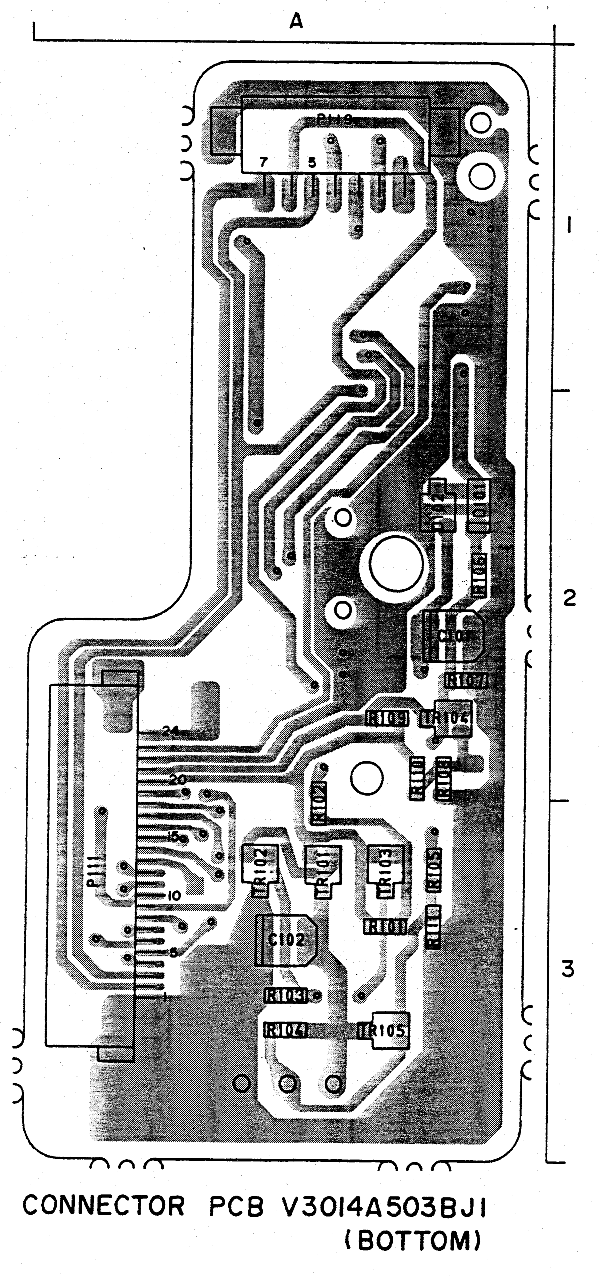
CONNECTORs

P111	A2,3
P119	A1

SINGLE CHIP TRANSISTOR




DA204U
1K,2A
1A 2K
(D102)


A
1
2
3
P119
7
5
24
20
15
10
5
P111
R101
R106
C107
R107
R109
TR104
R110
R108
R102
TR102
TR101
TR103
R105
C102
R101
R111
R103
R104
TR105

CONNECTOR PCB V3014A503BJI
(BOTTOM)

PRINCIPAL PARTS LOCATION

ICs

IC701	B4
IC702	B4

DIODEs

D701	C2
D706	B4
D707	A3
D731	A2
D732	A2

INDUCTORs

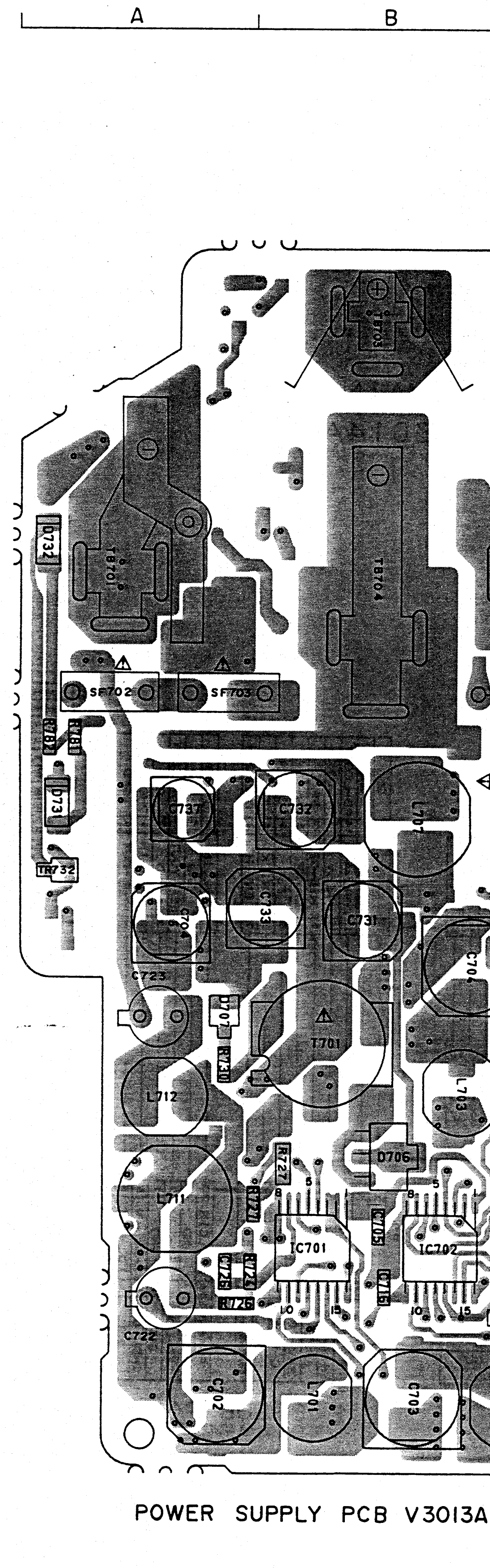
D701	C2
L701	B4
L702	B,C4
L703	B3
L704	C4
L705	C4
L706	C3,4
L707	B2,3
L711	A4
L712	A3

TRANSISTOR

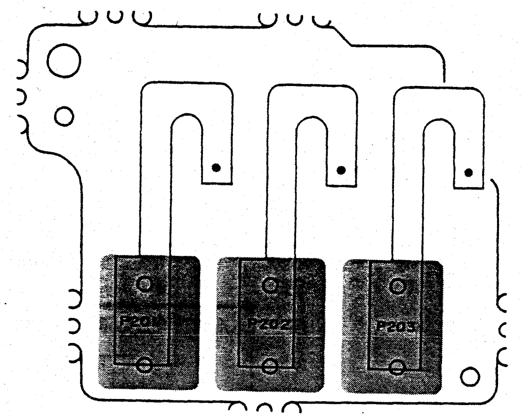
TR732	A3

FUSEs

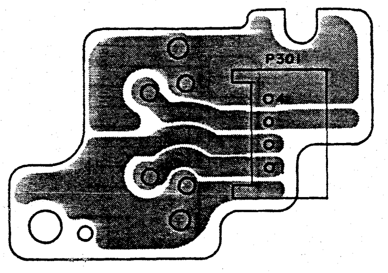
SF701	B,C2
SF702	A2
SF703	A,B2


A
B
D732
T8701
T8704
SF702
SF703
D731
TR732
C737
C732
C733
C731
C725
D707
R730
T701
L712
L711
R727
D706
IC701
IC702
C722
C702
L701
C703

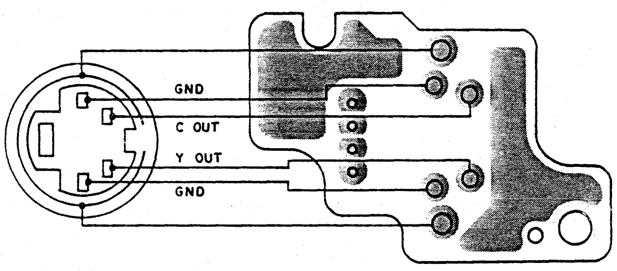
POWER SUPPLY PCB V3013A


P201
P202
P203

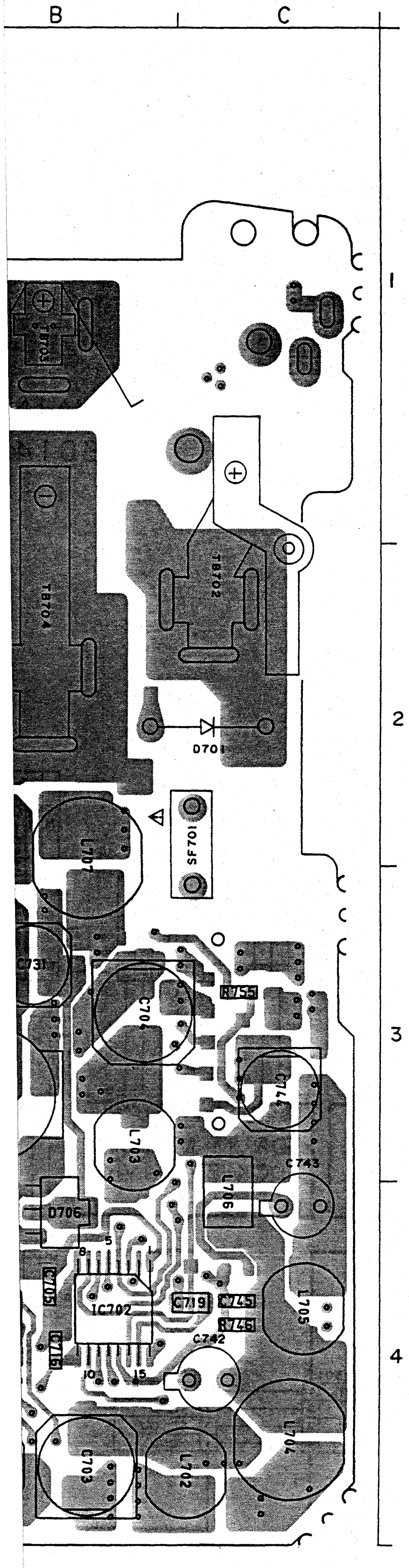
REMOCON PIN PCB V3014A503CJ1
(TOP)



S-SOCKET PCB V3014A503DJ1
(BOTTOM)


GND
C OUT
Y OUT
GND

S-SOCKET PCB V3014A503DJ1
(TOP)


B
C
1
2
3
4
TB704
TB702
D701
SF701
L707
C731
C704
R755
C744
L703
C743
L706
D706
IC702
C719
C745
R745
C742
L705
C703
L702
L704

CB V3013A502DJ1 (BOTTOM)

PRINCIPAL PARTS LOCATION

DIODEs

D702	C4
D703	B3
D704	A4
D705	B3
D709	A2
D710	B2
D711	A4

CONNECTORs

J701	C1
J709	C3
P706	A,B1

INDUCTORs

L708	B3
L709	A3
L710	A3

TRANSISTORs

TR701	C4
TR702	C4
TR704	B3
TR705	A,B4
TR707	A3,4
TR708	A4
TR709	A3
TR710	A2
TR711	A3

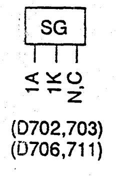
VOLUMEs

VR702	B4
VR703	C4

FUSE

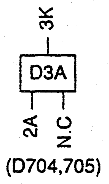
F701	B1,5

UIGWJ49



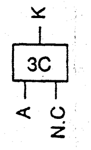
(D702,703)
(D706,711)

RB400D



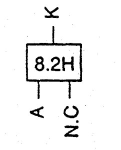
(D704,705)

RB451F

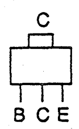


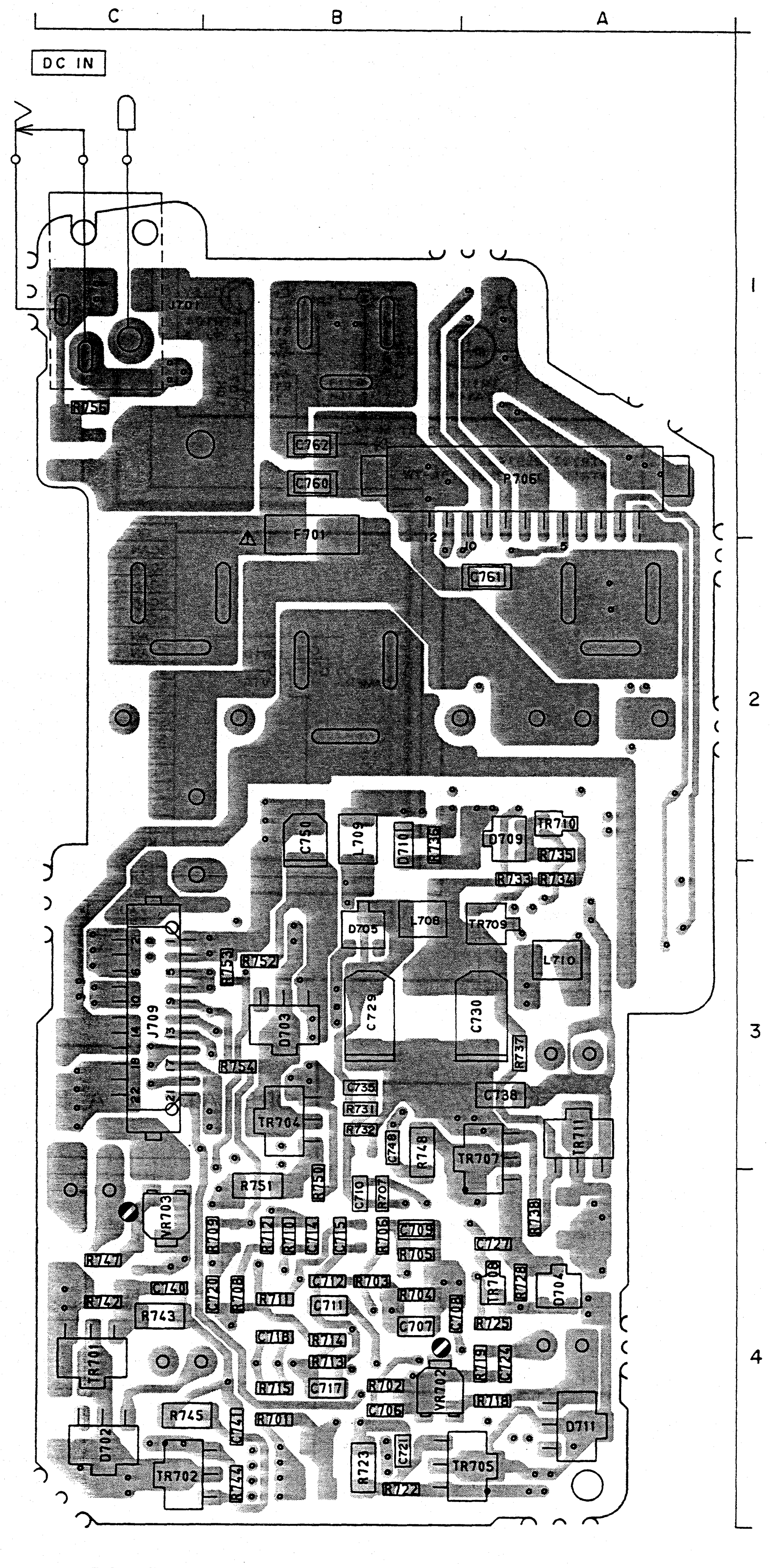
(D707)

MA3039-HTW



(D709)

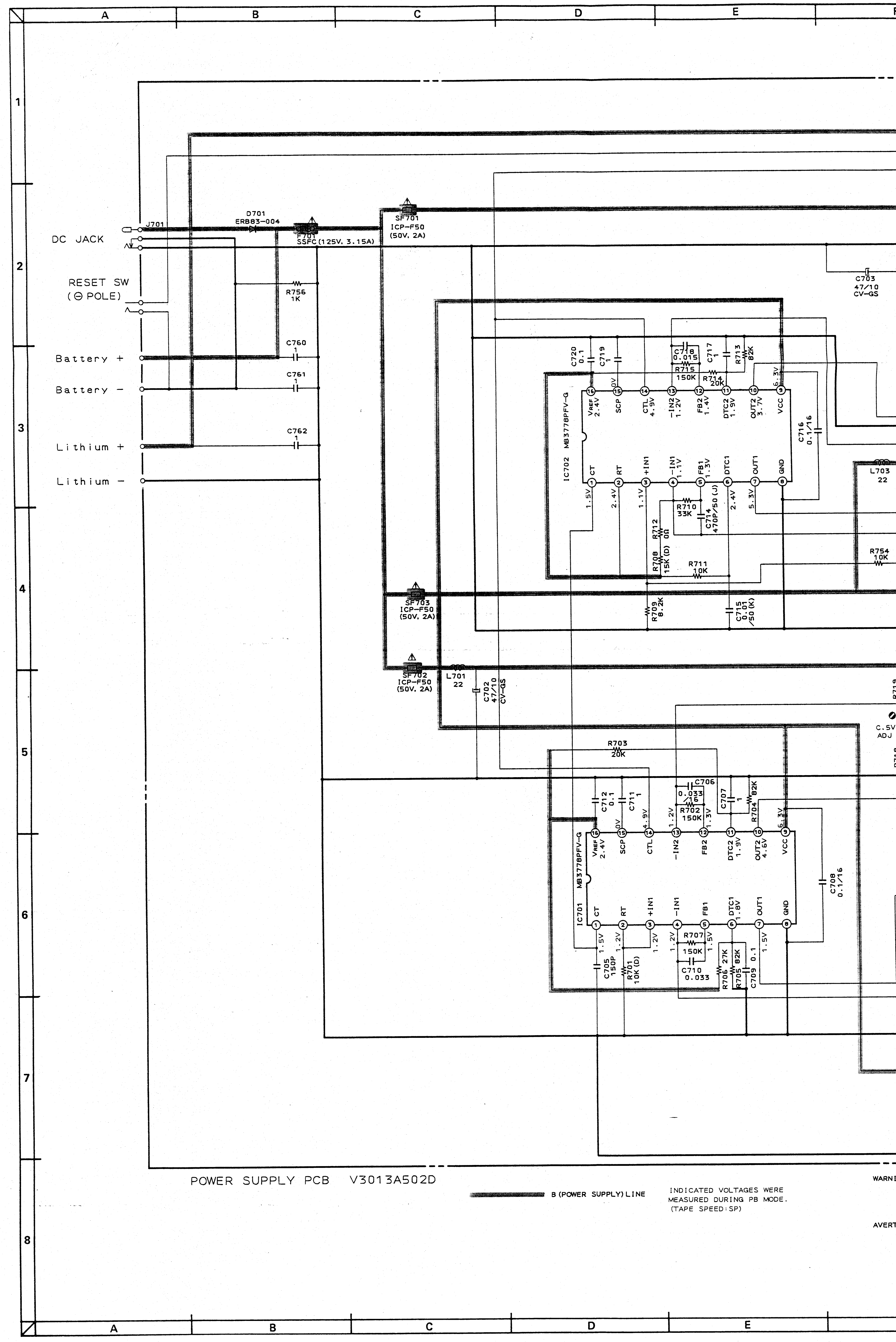



C
B
A
1
2
3
4
DC IN
D701
R756
C762
C760
F701
C761
J709
C750
L709
D711
R736
D709
TR710
R735
R733
R734
D705
L708
TR709
L710
R753
R752
C729
C730
D703
R737
R754
C735
R731
C738
TR704
R732
C748
R749
TR707
TR711
R751
R750
VR703
C727
R747
C740
R711
C712
R703
C711
R742
R743
C707
R725
D704
TR701
C718
R714
R713
R715
C717
R702
VR702
R718
C705
R745
R701
D711
D702
TR702
R723
C721
TR705
R722

WARNING: ⚠INDICATES SAFETY CRITICAL COMPONENTS FOR CONTINUED SAFETY.
REPLACE SAFETY CRITICAL COMPONENTS ONLY WITH MANUFACTURER'S RECOMMENDED PARTS

AVERTISSEMENT: ⚠IL INDIQUE LES COMPOSANTS CRITIQUES DE SÉCURITÉ.
POUR MAINTENIR LE DEGRÉ DE SÉCURITÉ DE L'APPAREIL,
NE REMPLACER QUE DES PIÈCES RECOMMANDEES PAR LE FABRICANT

POWER SUPPLY PCB V3013A502DJ1 (TOP)


A
B
C
D
E
1
2
3
4
5
6
7
8
DC JACK
J701
RESET SW
(⊖ POLE)
Battery +
Battery −
Lithium +
Lithium −
D701
ERB83-004
F701
SSFC(125V, 3.15A)
R756
1K
C760
1
C761
1
C762
1
SF701
ICP-F50
(50V, 2A)
SF703
ICP-F50
(50V, 2A)
SF702
ICP-F50
(50V, 2A)
L701
22
C702
47/10
CV-GS
C703
47/10
CV-GS
IC702 MB3778PFV-G
VREF 2.4V
SCP 0V
CTL 4.9V
-IN2 1.2V
FB2 1.4V
DTC2 1.9V
OUT2 3.7V
VCC 6.3V
CT 1.5V
RT 2.4V
+IN1 1.1V
-IN1 1.1V
FB1 1.3V
DTC1 2.4V
OUT1 5.3V
GND
C720
0.1
C719
1
C718
0.015
R715
150K
R714
20K
C717
1
R713
82K
C716
0.1/16
R710
33K
C714
470P/50 (J)
R712
0Ω
R708
15K (D)
R711
10K
R709
8.2K
C715
0.01
/50 (K)
L703
22
R754
10K
C.5V
ADJ
R703
20K
IC701 MB3778PFV-G
VREF 2.4V
SCP 0V
CTL 4.9V
-IN2 1.2V
FB2 1.3V
DTC2 1.9V
OUT2 4.6V
VCC 6.3V
CT 1.5V
RT 1.2V
+IN1 1.2V
-IN1 1.2V
FB1 1.5V
DTC1 1.8V
OUT1 1.5V
GND
C712
0.1
C711
1
C706
0.033
/16
R702
150K
C707
1
R704
82K
C708
0.1/16
C705
150P
R701
10K (D)
R707
150K
C710
0.033
R706
27K
R705
82K
C709
0.1
A
B
C
D
E

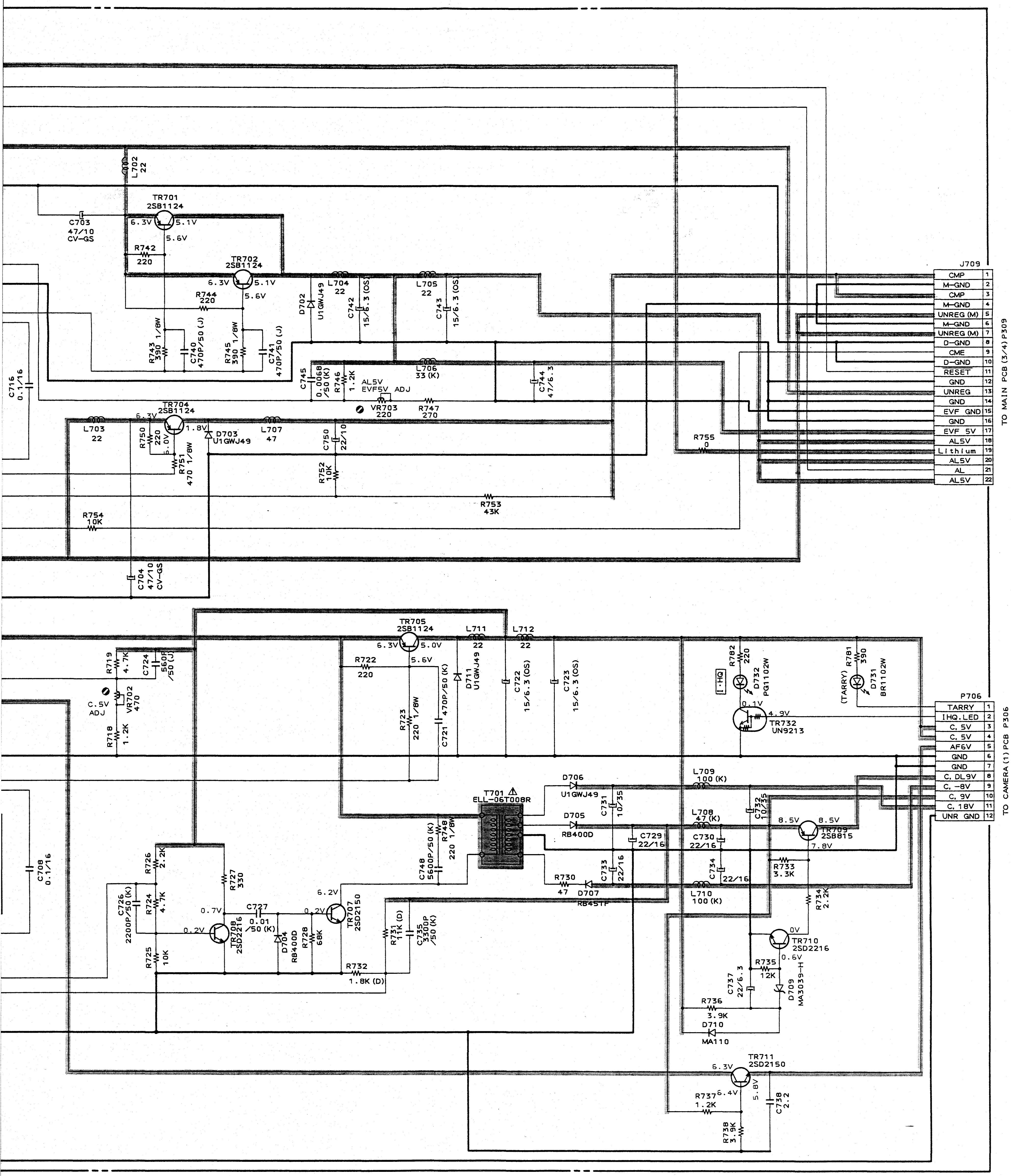
POWER SUPPLY PCB V3013A502D

B (POWER SUPPLY) LINE

INDICATED VOLTAGES WERE MEASURED DURING PB MODE. (TAPE SPEED:SP)

WARNI

AVERT


TR701
2SB1124
6.3V
5.1V
5.6V
C703
47/10
CV-GS
R742
220
L702
22
TR702
2SB1124
6.3V
5.1V
5.6V
R744
220
R743
390 1/8W
C740
470P/50 (J)
R745
390 1/8W
C741
470P/50 (J)
D702
U1GWJ49
L704
22
C742
15/6.3 (OS)
L705
22
C743
15/6.3 (OS)
C716
0.1/16
C745
0.0068
/50 (K)
R746
1.2K
AL5V
EVF5V ADJ
VR703
220
R747
270
L706
33 (K)
C744
47/6.3
TR704
2SB1124
6.3V
1.8V
5.0V
L703
22
R750
220
R751
470 1/8W
D703
U1GWJ49
L707
47
C750
22/10
R752
10K
R753
43K
R754
10K
C704
47/10
CV-GS
R755
0
J709
CMP 1
M-GND 2
CMP 3
M-GND 4
UNREG (M) 5
M-GND 6
UNREG (M) 7
D-GND 8
CME 9
D-GND 10
RESET 11
GND 12
UNREG 13
GND 14
EVF GND 15
GND 16
EVF 5V 17
AL5V 18
Lithium 19
AL5V 20
AL 21
AL5V 22
TO MAIN PCB (3/4) P309
TR705
2SB1124
6.3V
5.0V
5.6V
L711
22
L712
22
R722
220
D711
U1GWJ49
C722
15/6.3 (OS)
C723
15/6.3 (OS)
R723
220 1/8W
C721
470P/50 (K)
R719
4.7K
C724
560P
/50 (J)
C.5V
ADJ
VR702
470
R718
1.2K
C708
0.1/16
T701
ELL-06T008R
R748
220 1/8W
C748
5600P/50 (K)
R726
2.2K
R727
330
C726
2200P/50 (K)
R724
4.7K
R725
10K
0.7V
0.2V
TR708
2SD2216
C727
0.01
/50 (K)
0.2V
6.2V
D704
RB400D
R728
68K
TR707
2SD2150
R731
11K (D)
C735
3300P
/50 (K)
R732
1.8K (D)
R782
220
I.HQ
D732
PG1102W
R781
390
(TARRY)
D731
BR1102W
0.1V
4.9V
TR732
UN9213
P706
TARRY 1
IHQ.LED 2
C.5V 3
C.5V 4
AF6V 5
GND 6
GND 7
C.DL9V 8
C.-8V 9
C.9V 10
C.18V 11
UNR GND 12
TO CAMERA (1) PCB P306
D706
U1GWJ49
C731
10/35
L709
100 (K)
D705
RB400D
C729
22/16
L708
47 (K)
C732
10/35
C730
22/16
8.5V
8.5V
TR709
2SB815
7.8V
R733
3.3K
R730
47
D707
RB451F
C733
22/16
C734
22/16
L710
100 (K)
R734
2.2K
0V
TR710
2SD2216
0.6V
R735
12K
C737
22/6.3
D709
MA3039-H
R736
3.9K
D710
MA110
TR711
2SD2150
6.3V
R737
1.2K
6.4V
5.8V
C738
2.2
R738
3.9K

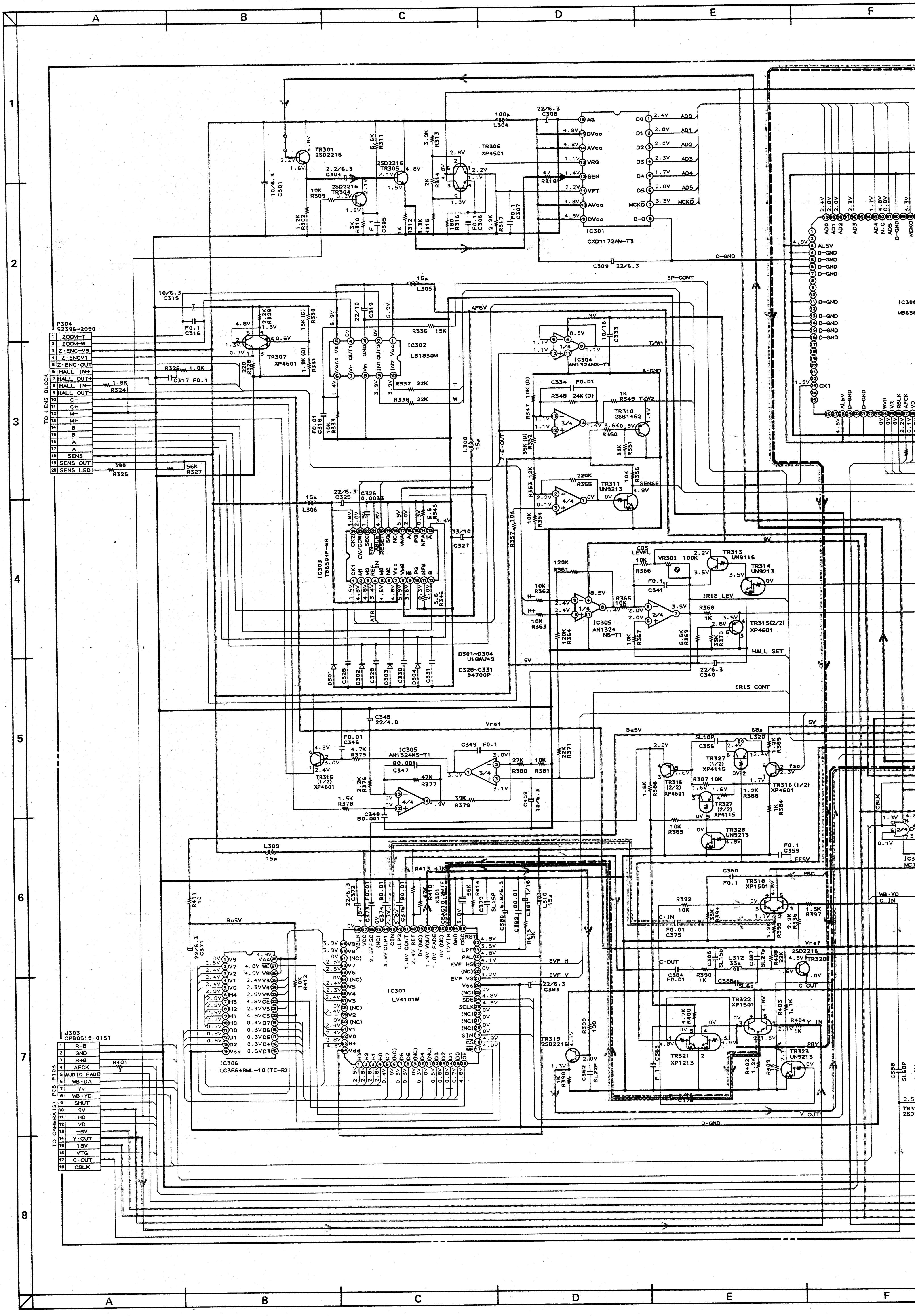
WARNING: ⚠ AND ▨ INDICATE SAFETY CRITICAL COMPONENTS FOR CONTINUED SAFETY. REPLACE SAFETY CRITICAL COMPONENTS ONLY WITH MANUFACTURER'S RECOMMENDED PARTS

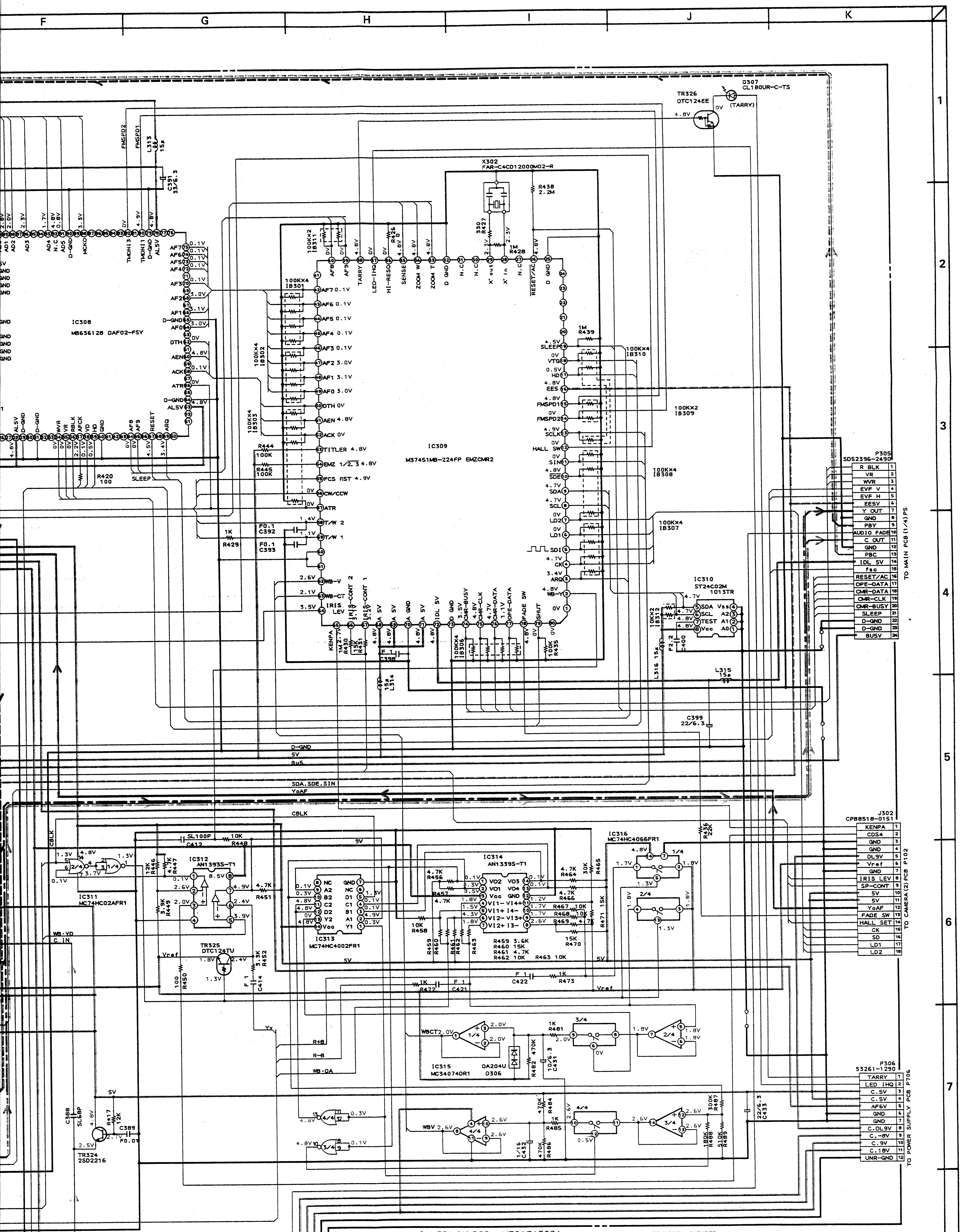
AVERTISSMENT: ⚠ ET ▨, ILS INDIQUENT LES COMPOSTANTS CRITIQUES DE SÉCURITÉ, POUR MAINTENIR LE DEGRÉ DE SÉCURITÉ DE L'APPAREIL, NE REMPLACER QUE DES PIÈCES RECOMMANDEES PAR LE FABRICANT

NOTE:
UNLESS OTHERWISE SPECIFIED
ALL RESISTORS IN OHMS 1/16W (J)
ALL CERAMIC CAPACITORS IN μF (P=PF) 16WV (Z)
ALL ELECTROLYTIC CAPACITORS IN μF/WV (M)
ALL INDUCTORS IN μH (M)

PV-MS8
POWER SUPPLY
SCHEMATIC DIAGRAM

No.13-2 V301402M
A1


A
B
C
D
E
F
1
2
3
4
5
6
7
8
P304
52396-2090
1 ZOOM-T
2 ZOOM-W
3 Z·ENC-VS
4 Z·ENCV1
5 Z·ENC·OUT
6 HALL IN+
7 HALL OUT+
8 HALL IN-
9 HALL OUT-
10 C-
11 C+
12 M-
13 M+
14 B
15 B
16 A
17 A
18 SENS
19 SENS OUT
20 SENS LED
TO LENS BLOCK
J303
CPB8518-0151
1 R-B
2 GND
3 R+B
4 AFCK
5 AUDIO FADE
6 WB·DA
7 Yv
8 WB·YD
9 SHUT
10 9V
11 HD
12 VD
13 -8V
14 Y·OUT
15 18V
16 VTG
17 C·OUT
18 CBLK
TO CAMERA(2) PCB P103
TR301 2SD2216
TR304 2SD2216
TR305 2SD2216
TR306 XP4501
TR307 XP4601
IC301 CXD1172AM-T3
IC302 LB1830M
IC303 TB6504F-ER
IC304 AN1324NS-T1
IC305 AN1324 NS-T1
IC306 LC3664RML-10 (TE-R)
IC307 LV4101W
TR310 2SB1462
TR311 UN9213
TR313 UN9115
TR314 UN9213
TR315(2/2) XP4601
TR315 (1/2) XP4601
TR316 (1/2) XP4601
TR316 (2/2) XP4601
TR327 (1/2) XP4115
TR327 (2/2) XP4115
TR328 UN9213
TR318 XP1501
TR319 2SD2216
TR320 2SD2216
TR321 XP1213
TR322 XP1501
TR323 UN9213
D301-D304 U1GWJ49
C328-C331 B4700P
VR301 100K
CDS LEVEL
IRIS LEV
HALL SET
IRIS CONT
SP-CONT
AF6V
Vref
BuSV
EE5V
PBC
C·IN
C·OUT
Y OUT
Y IN
PBY
EVF H
EVF V
D-GND
A-GND
SENSE
T/W1
T/W2
Z·E·OUT
AD0
AD1
AD2
AD3
AD4
AD5
MCKO
IC306 MB630


IC308
MB636128 DAF02-FSY
IC309
M37451MB-224FP EMZCMR2
X302
FAR-C4CD12000M02-R
TR326
DTC124EE
D307
CL180UR-C-TS
(TARRY)
IC310
ST24C02M
1013TR
P305
SD52396-2490
R BLK
VR
WVR
EVF V
EVF H
EESV
Y OUT
GND
PBY
AUDIO FADE
C OUT
GND
PBC
IDL 5V
fsc
RESET/AC
OPE-DATA
CMR-DATA
CMR-CLK
CMR-BUSY
SLEEP
D-GND
D-GND
BUSV
TO MAIN PCB (1/4) P5
J302
CPB8518-0151
KENPA
CDS4
GND
GND
DL9V
Vref
GND
IRIS LEV
SP-CONT
5V
5V
YoAF
FADE SW
HALL SET
CK
SD
LD1
LD2
TO CAMERA (2) PCB P102
P306
53261-1290
TARRY
LED IHQ
C.5V
C.5V
AF6V
GND
GND
C.DL9V
C.-8V
C.9V
C.18V
UNR-GND
TO POWER SUPPLY PCB P706
IC311
MC74HC02AFR1
IC312
AN1393S-T1
IC313
MC74HC4002FR1
IC314
AN1339S-T1
IC316
MC74HC4066FR1
IC315
MC34074DR1
DA204U
D306
TR325
DTC124TU
TR324
2SD2216
D-GND
5V
Bu5
SDA.SDE.SIN
YoAF
CBLK
F
G
H
I
J
K
1
2
3
4
5
6
7
8

CAMERA (1) PCB V3013A502A

B (POWER SUPPLY) LINE (AL, IDL)
B (POWER SUPPLY) LINE (EE)
CAMERA Y SIGNAL LINE
PB (VTR) Y SIGNAL LINE
PB OR CAMERA Y OUT SIGNAL LINE
CAMERA CHROMA SIGNAL LINE
PB (VTR) CHROMA SIGNAL LINE
PB OR CAMERA CHROMA OUT SIGNAL LINE

INDICATED VOLTAGES WERE MEASURED
DURING REC MODE.

NOTE:
UNLESS OTHERWISE SPECIFIED
ALL RESISTORS IN OHMS
ALL CAPACITORS IN µF (P=PF)
ALL ELECTROLYTIC CAPACITORS IN µF/WV
ALL INDUCTORS IN µH

PV-MS8
CAMERA (1)
SCHEMATIC DIAGRAM

No.13-3 V301403M

A0

PRINCIPAL PARTS LOCATION

ICs

IC301	A2,3
IC303	A,B4,5
IC307	B,C3
IC308	A,B1,2
IC310	B,C1
IC311	A,B1
IC312	B1
IC313	B2
IC314	B2
IC315	C,D2
IC316	C2

DIODEs

D306	C2,3
D307	A6

INTEGRATED BLOCKs

IB301	B2
IB302	B2
IB303	B1,2
IB312	C1

INDUCTORs

L306	A4
L310	C4
L314	C1,2

TRASISTORs

TR313	B1
TR318	D2
TR320	C3
TR321	C4
TR322	C3
TR323	C3
TR324	D3
TR325	B1

VOLUME

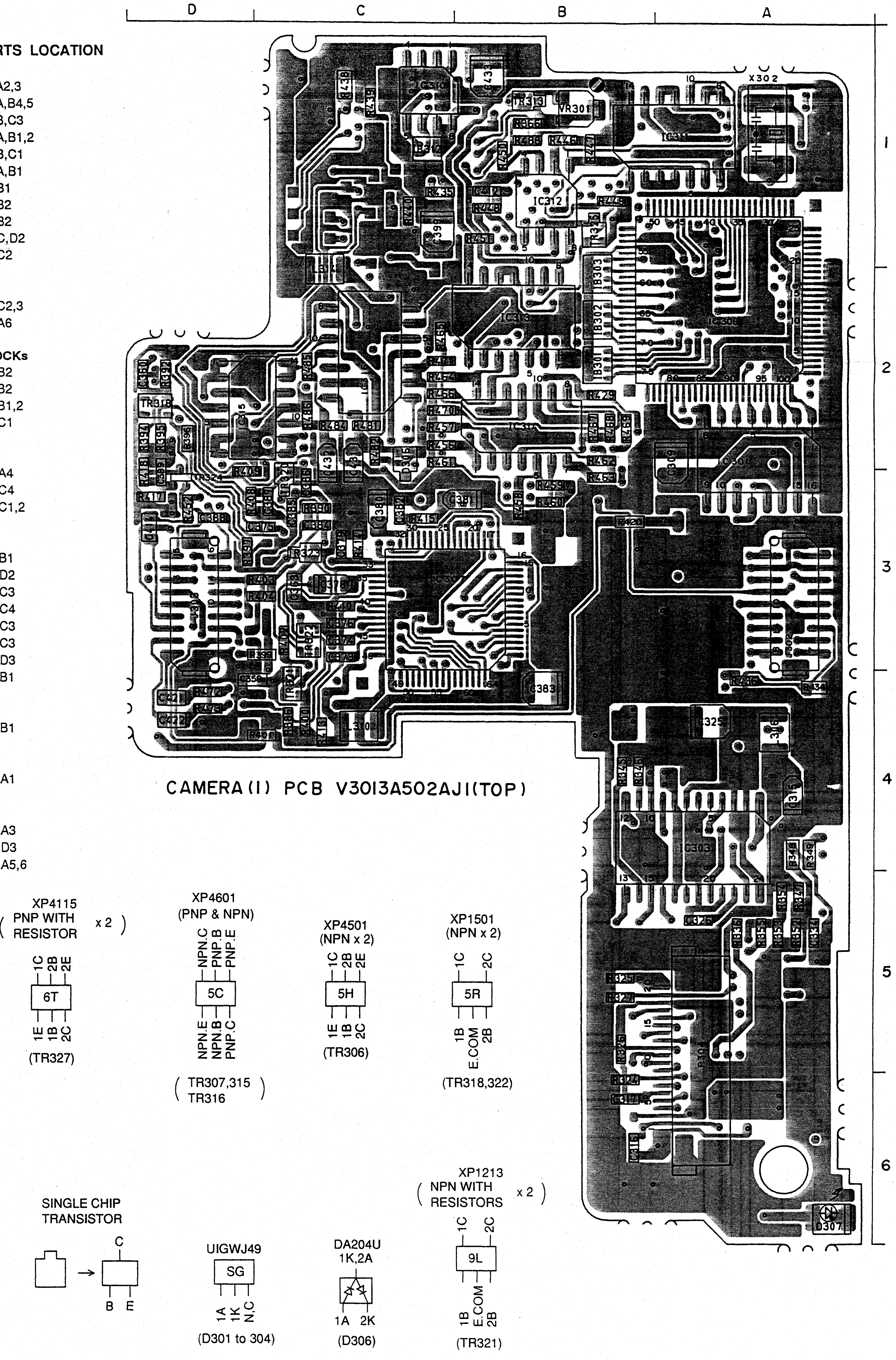
VR301	B1

X-TAL

X302	A1

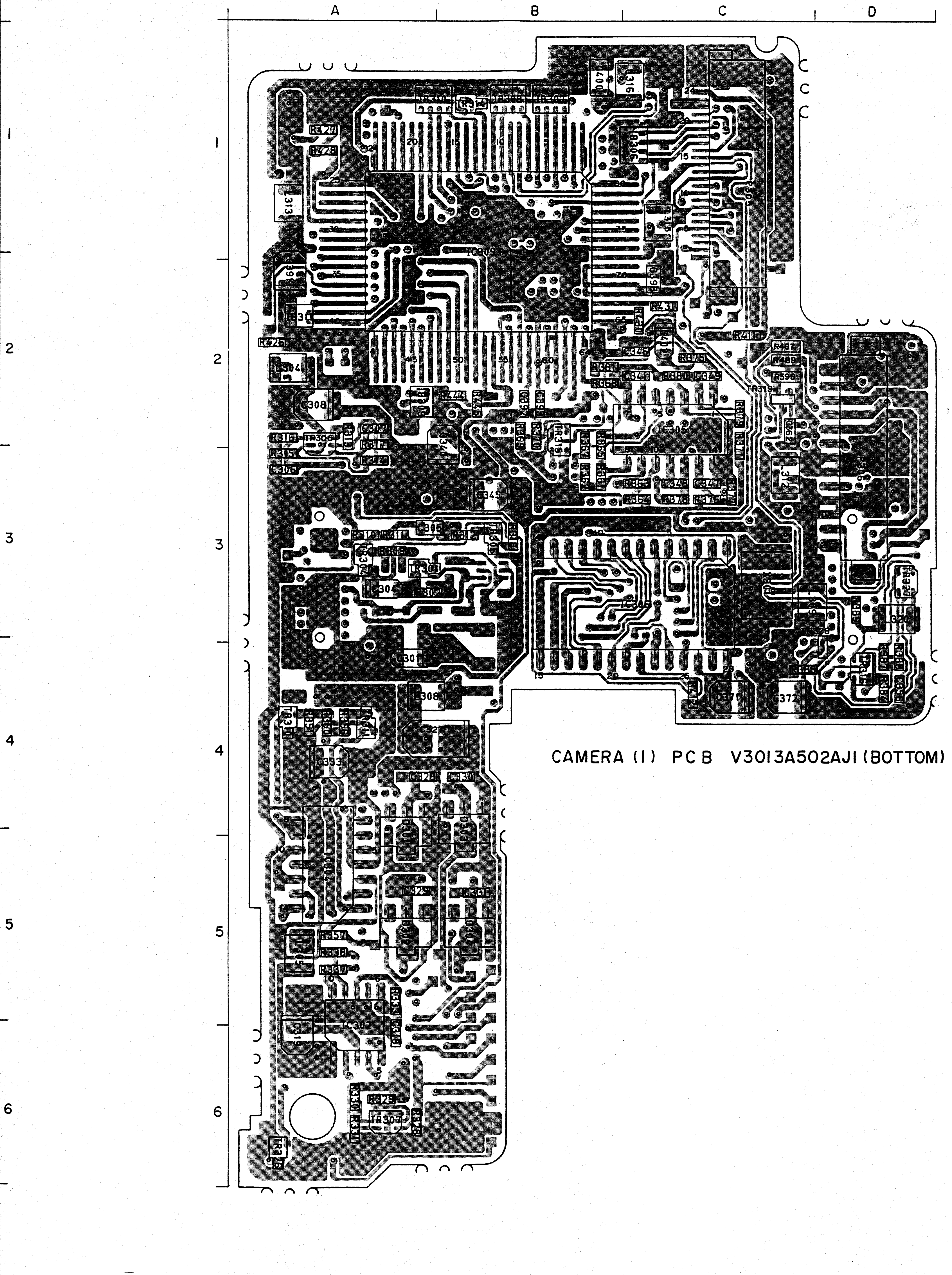
CONNECTORs

J302	A3
J303	D3
P304	A5,6



CAMERA(I) PCB V3013A502AJ1(TOP)

D
C
B
A
1
2
3
4
5
6
X302
IC311
VR301
TR313
IC312
IC308
IC313
IC307
IC303
D307
XP4115
(PNP WITH RESISTOR x 2)
1C 2B 2E
6T
1E 1B 2C
(TR327)
XP4601
(PNP & NPN)
NPN.C PNP.B PNP.E
5C
NPN.E NPN.B PNP.C
(TR307,315 TR316)
XP4501
(NPN x 2)
1C 2B 2E
5H
1E 1B 2C
(TR306)
XP1501
(NPN x 2)
1C 2C
5R
1B E.COM 2B
(TR318,322)
SINGLE CHIP TRANSISTOR
C
B E
UIGWJ49
SG
1A 1K N.C
(D301 to 304)
DA204U
1K,2A
1A 2K
(D306)
XP1213
(NPN WITH RESISTORS x 2)
1C 2C
9L
1B E.COM 2B
(TR321)


A
B
C
D
1
2
3
4
5
6
IC309
IC305
IC306
IC304
IC302
TR306
TR307
TR326
TR319
D301
D302
D303
D304
L313
L304
L305
L316
L320
X301

CAMERA (1) PCB V3013A502AJ1 (BOTTOM)

PRINCIPAL PARTS LOCATION

ICs

IC302	A5,6
IC304	A4,5
IC305	B,C2
IC306	B,C3
IC309	A,B1,2

DIODEs

D301	A4,5
D302	A5
D303	B4,5
D304	B5

INTEGRATED BLOCKs

IB306	C1
IB307	B1
IB308	B1
IB309	A2
IB310	A,B1
IB311	A2

CONNECTORs

P305	C1,2
P306	D3

X - TAL

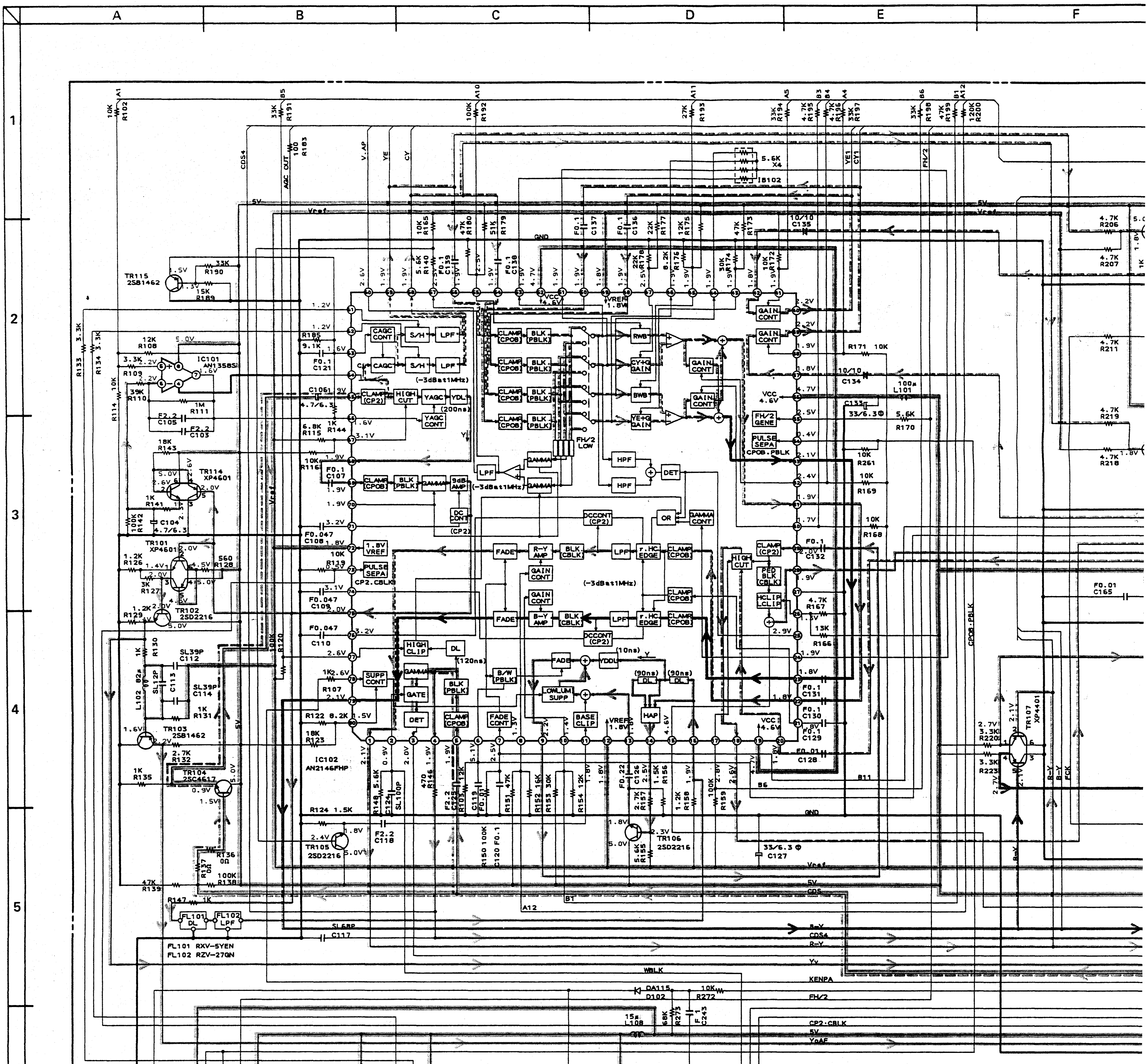
X301	C3

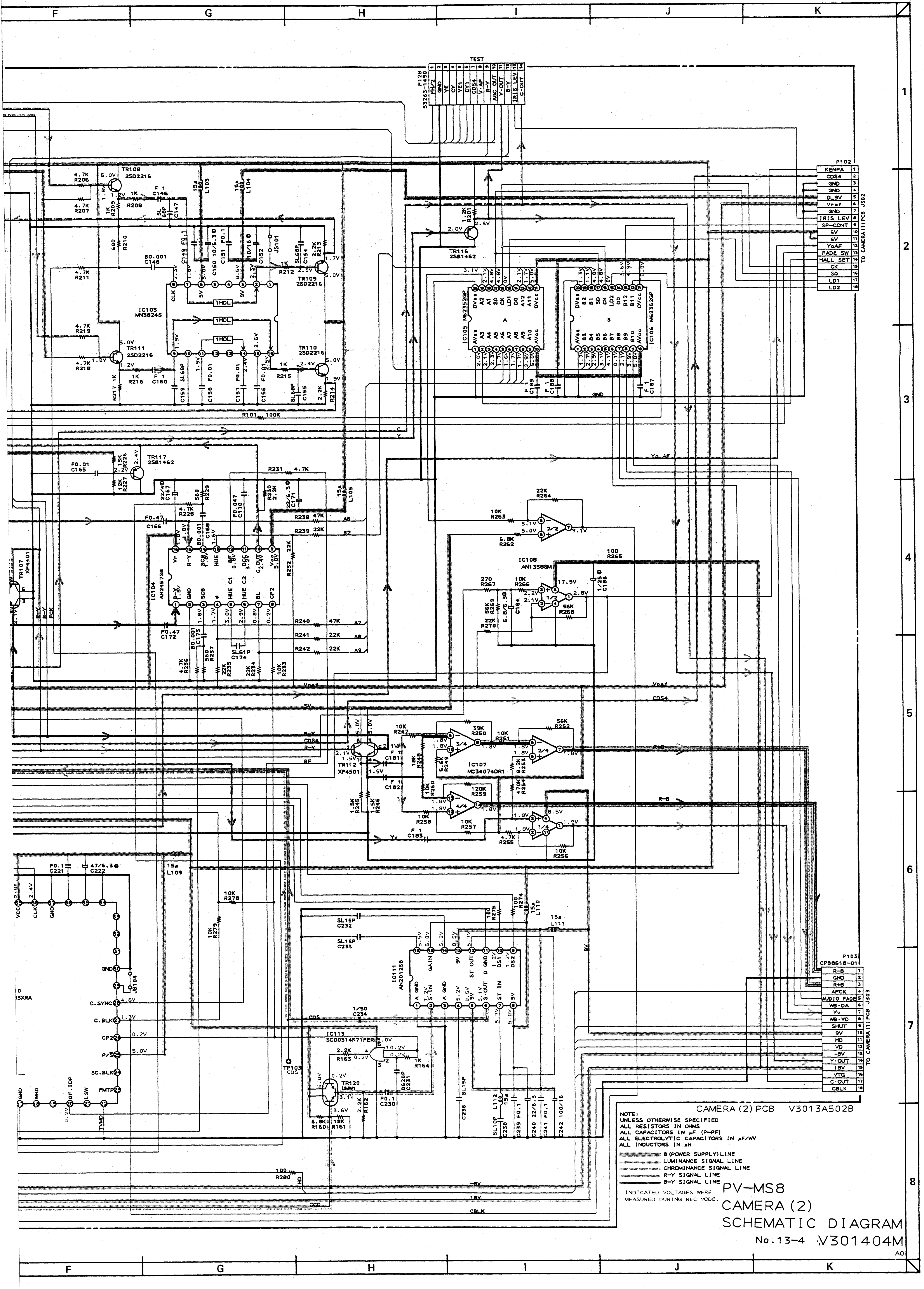
INDUCTORs

L304	A2
L305	A5
L308	A4
L309	C,D3
L312	C3
L313	A1
L314	B1
L315	C1
L316	B,C1
L320	D3

TRANSISTORs

TR301	A3
TR304	A3
TR305	B3
TR306	A2,3
TR307	A6
TR310	A4
TR311	A4
TR314	B1
TR315	B2,3
TR316	D4
TR319	C2
TR326	A6
TR327	D3
TR328	C,D4


A
B
C
D
E
F
1
2
3
4
5
6
7
8
IC101 AN1358S
IC102 AN2146FHP
IC109 MN5181H
IC110 MN73033XRA
IC112 SC0037S 04FER
TR101 XP4601
TR102 2SD2216
TR103 2SB1462
TR104 2SC4617
TR105 2SD2216
TR106 2SD2216
TR107 XP4401
TR113 2SD2216
TR114 XP4601
TR115 2SB1462
FL101 RXV-5YEN
FL102 RZV-27GN
X101 UXO-3F 25.75MHz
X102 CX-49F 17.734475MHz
D101 ISV200
D102 DA115
TP101
TP102
TP104 FCK
JS102
P101 53268-1890
TO CCD PCB J1
1 -8V
2 18V
3 5V
4 Vsub CONT
5 φH1
6 φR
7 φH2
8 CH2
9 IV4
10 CH1
11 IV2
12 IV3
13 Isub
14 IV1
15 GND
16 GND
17 CCD
18 GND
CAGC CONT
S/H
LPF
CAGC
(-3dBat1MHz)
CLAMP (CP2)
HIGH CUT
YAGC
YDL
(200ns)
YAGC CONT
CLAMP (CPOB)
BLK (PBLK)
GAMMA
9dB AMP
DC CONT
(CP2)
1.8V VREF
PULSE SEPA
CP2.CBLK
HIGH CLIP
DL
(120ns)
SUPP CONT
GATE
DET
BLK (PBLK)
CLAMP (CPOB)
FADE CONT
B/W (PBLK)
LOWLUM SUPP
BASE CLIP
FADE
YDDL
(10ns)
(90ns) DL
HAP
R-Y AMP
B-Y AMP
BLK (CBLK)
GAIN CONT
DCCONT (CP2)
r.HC EDGE
(-3dBat1MHz)
RWB
CY+G GAIN
BWB
YE+G GAIN
FH/2 LOW
HPF
DET
OR
GAMMA CONT
GAIN CONT
FH/2 GENE
PULSE SEPA
CPOB.PBLK
CLAMP (CP2)
PED BLK (CBLK)
HCLIP LCLIP
HIGH CUT
VCC 4.6V
VREF 1.8V
GND
5V
Vref
CDS4
AGC OUT
V.AP
YE
CY
YE1
CY1
FH/2
CPOB.PBLK
R-Y
B-Y
FCK
CDS
A12
B7
B6
B11
CDS4
Yv
WBLK
KENPA
CP2.CBLK
YoAF
AFCK
X0
SS1
SS2
SS3
SS4
VTG
SHUT CNT
FH/2
P.BLK
CPOB
CLK2
X1
TEST
SP2
SP1
VDD
VSS
PN S/W
SP4
SPO
TEST3
DS2
DS1
RIWO
RWI
Vss
R
HB
HA
VDD
Sub
TST2
Fck
HD
VO
V1
V2
VDD
Vss
V3
V4
CH1
CH2
IV2
IV3
IV4
Isub
φH1
φH2
VD
HD
EO
VCC
CLK
GND
WBLK
OSC
OSC1
VCC
SC1 (B)
SC2 (R)
GND
WHD
BF. IDP
LSW
TVMD
GND
C.SYNC
C.BLK
CP2
P/S
SC.BLK
FMTF
fsc
5.6K X4
IB102
L101 100μ
L102 82μ
L108 15μ
C224 SL33P


F
G
H
I
J
K
1
2
3
4
5
6
7
8
TEST
P128
5326S-1490
FW/2
GND
YE
CY
YE1
CY1
CDS4
V-AP
R-Y
AGC OUT
Y-OUT
B-Y
IRIS LEV
C-OUT
P102
KENPA
CDS4
GND
GND
DL9V
Vref
GND
IRIS LEV
SP-CONT
5V
5V
YoAF
FADE SW
HALL SET
CK
SD
LD1
LD2
TO CAMERA (1) PCB J302
P103
CP88618-01
R-B
GND
R+B
AFCK
AUDIO FADE
WB·DA
Yv
WB·YD
SHUT
9V
HD
VD
-8V
Y·OUT
18V
VTG
C·OUT
CBLK
TO CAMERA (1) PCB J303
TR108 2SD2216
TR109 2SD2216
TR110 2SD2216
TR111 2SD2216
IC103 MN3824S
1HDL
TR116 2SB1462
IC105 M62352GP
IC106 M62352GP
TR117 2SB1462
IC104 AN2457SB
IC108 AN1358SM
TR107 XP4401
TR112 XP4501
IC107 MC34074DR1
IC111 AN201258
IC113 SC00314S71FER
TR120 UMN1
TP103 CDS
R101 100K
Vref
CDS4
5V
R-Y
B-Y
Yo AF
R+B
R-B
-8V
18V
CBLK
CCD
A0

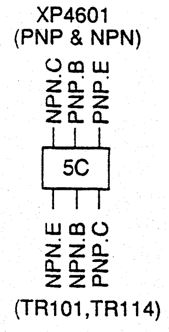
CAMERA (2) PCB V3013A502B

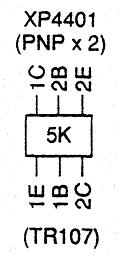
NOTE:
UNLESS OTHERWISE SPECIFIED
ALL RESISTORS IN OHMS
ALL CAPACITORS IN μF (P=PF)
ALL ELECTROLYTIC CAPACITORS IN μF/WV
ALL INDUCTORS IN μH

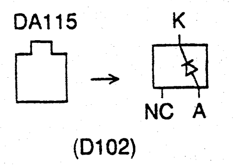
▬	B (POWER SUPPLY) LINE
▬	LUMINANCE SIGNAL LINE
╍	CHROMINANCE SIGNAL LINE
▬	R-Y SIGNAL LINE
▬	B-Y SIGNAL LINE

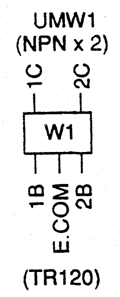
INDICATED VOLTAGES WERE
MEASURED DURING REC MODE.

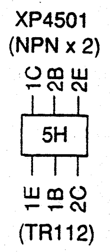
PV-MS8
CAMERA (2)
SCHEMATIC DIAGRAM
No.13-4 V301404M

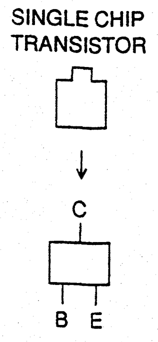

XP4601
(PNP & NPN)
NPN.C
PNP.B
PNP.E
5C
NPN.E
NPN.B
PNP.C
(TR101,TR114)


XP4401
(PNP x 2)
1C
2B
2E
5K
1E
1B
2C
(TR107)


DA115
K
NC
A
(D102)


UMW1
(NPN x 2)
1C
2C
W1
1B
E.COM
2B
(TR120)


XP4501
(NPN x 2)
1C
2B
2E
5H
1E
1B
2C
(TR112)


SINGLE CHIP
TRANSISTOR
C
B
E

PRINCIPAL PARTS LOCATION

ICs

IC101	B,C3
IC103	C3
IC106	C1
IC108	C1
IC109	A2
IC110	A,B3
IC111	B1,2
IC112	A2

DIODE

D102	A2

INDUCTORs

L101	C3
L105	C1
L110	A1
L111	A2
L112	A1,2

CONNECTORs

P101	A1
P102	C2
P103	A2

INTEGRATED BLOCK

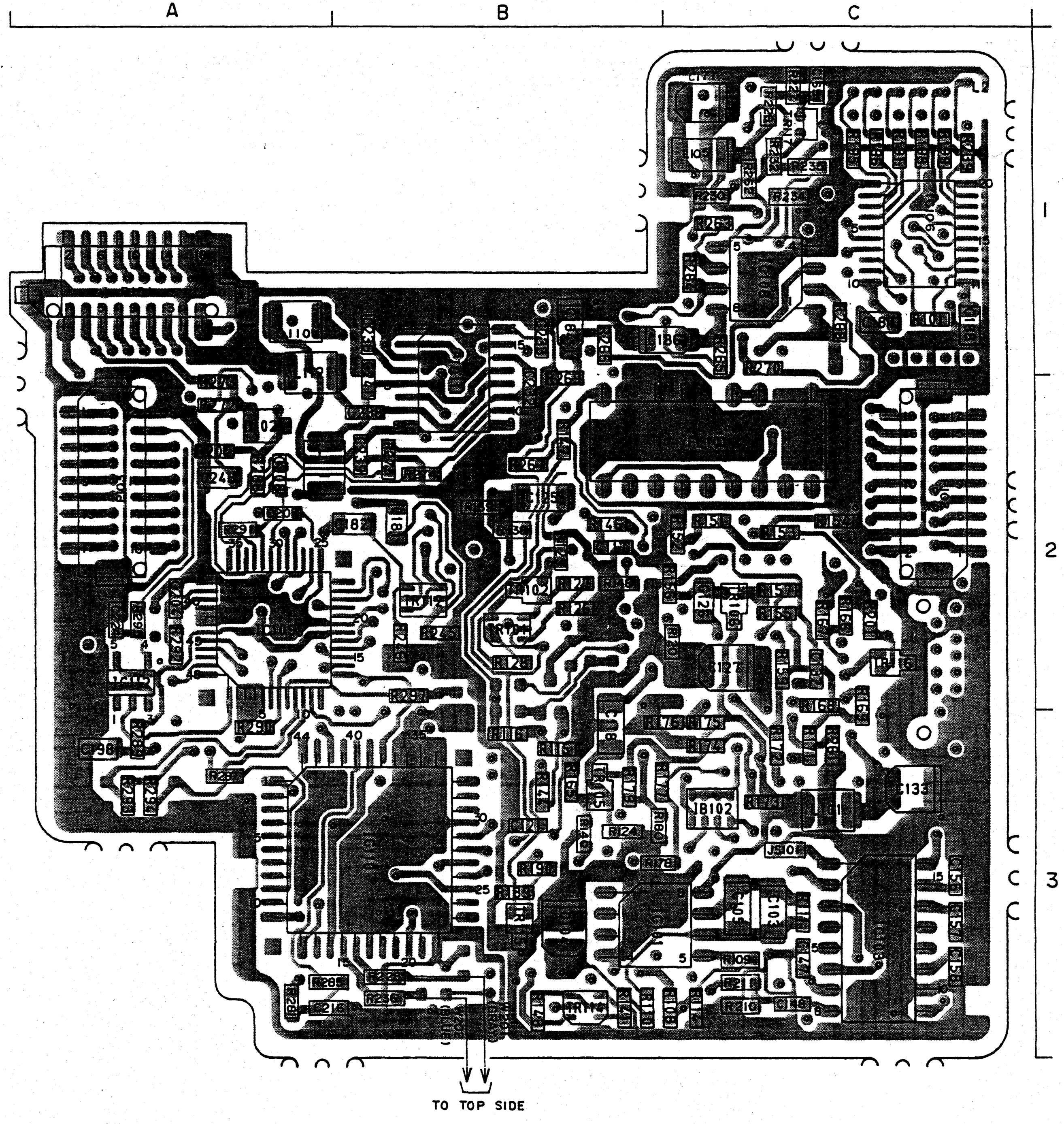
IB102	C3

TRANSISTORs

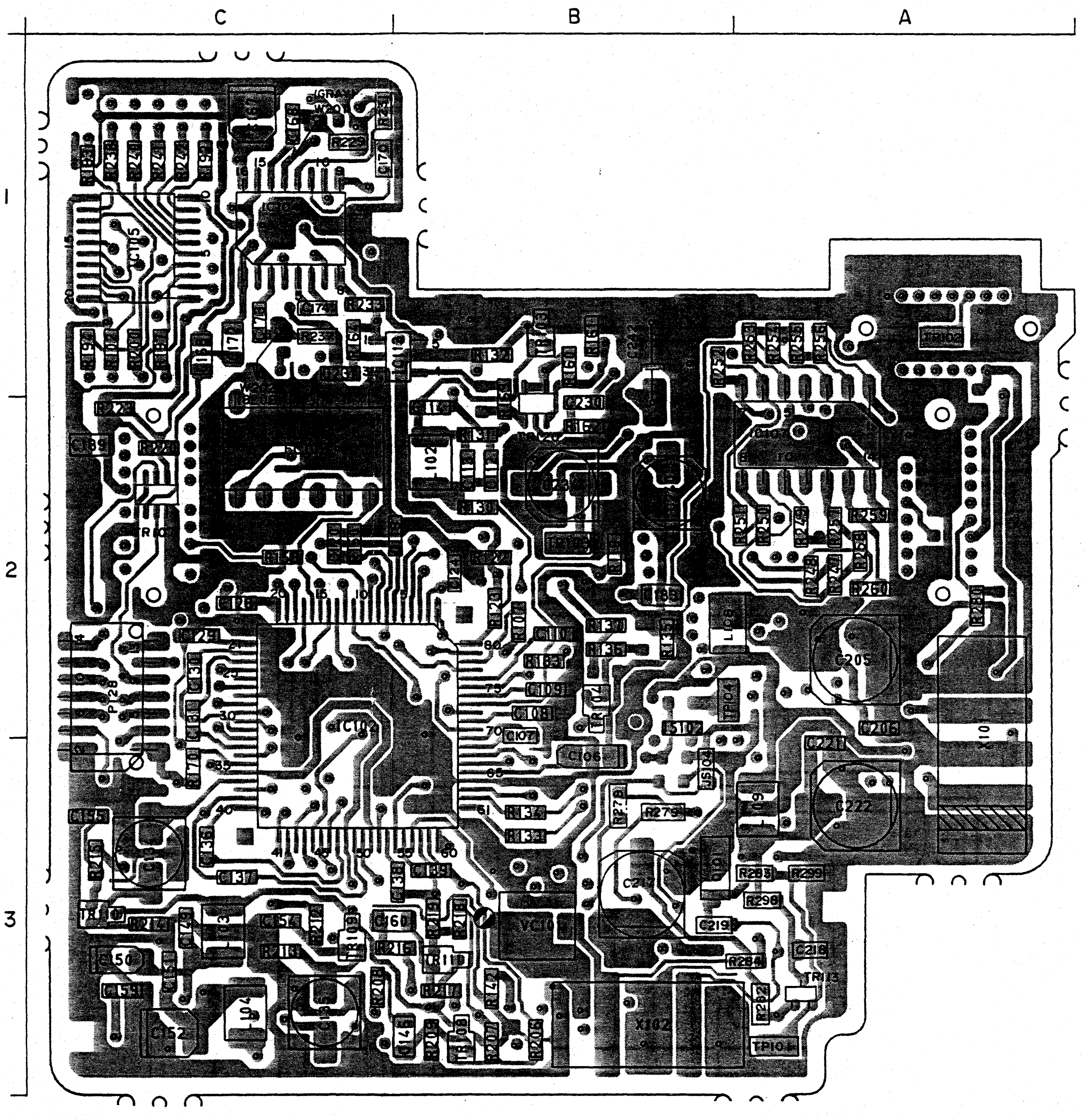
TR101	B2
TR102	B2
TR105	B2
TR106	C2
TR112	B2
TR114	B3
TR115	B3
TR116	C2
TR117	C1

FILTER

FL101	B,C2


A
B
C
1
2
3
IB102
C133
TO TOP SIDE

CAMERA (2) PCB V3013A502BJ1 (BOTTOM)


C
B
A
1
2
3
IC105
IC102
P128
C203
C222
X102
L104
C152

CAMERA (2) PCB V3013A502BJ1 (TOP)

PRINCIPAL PARTS LOCATION

ICs

IC102	B,C2,3
IC104	C1
IC105	C1
IC107	A2
IC113	B,C1

DIODE

D101	B3

INDUCTORs

L102	B2
L103	C3
L104	C3
L108	A,B2
L109	A3

CONNECTOR

P128	C2,3

TEST POINTs

TP101	A3
TP102	A1
TP103	B2
TP104	A,B2

TRANSISTORs

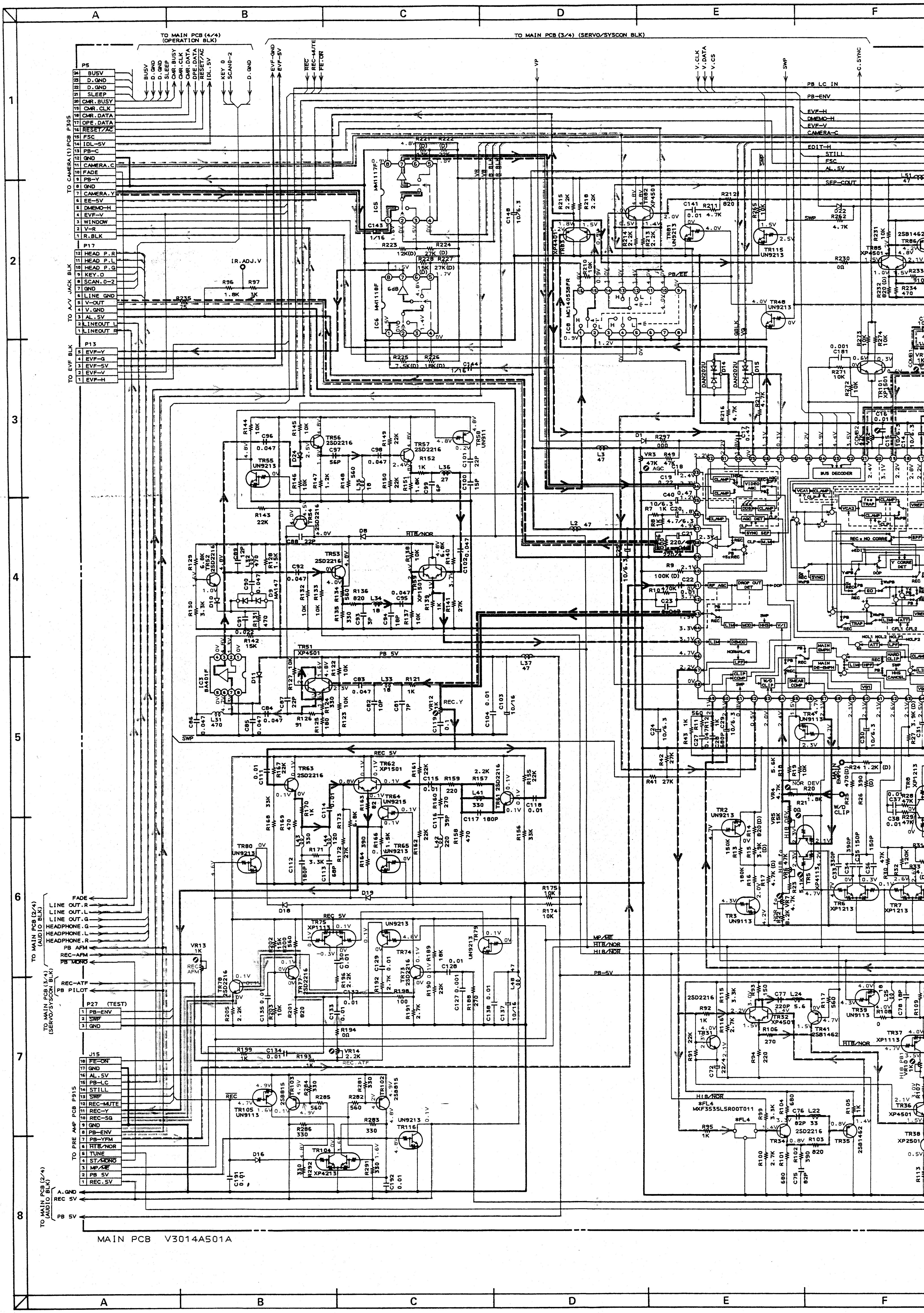
TR103	B1
TR104	B2
TR107	C2
TR108	B3
TR109	C3
TR110	C3
TR111	B3
TR113	A3
TR120	B2

X - TALs

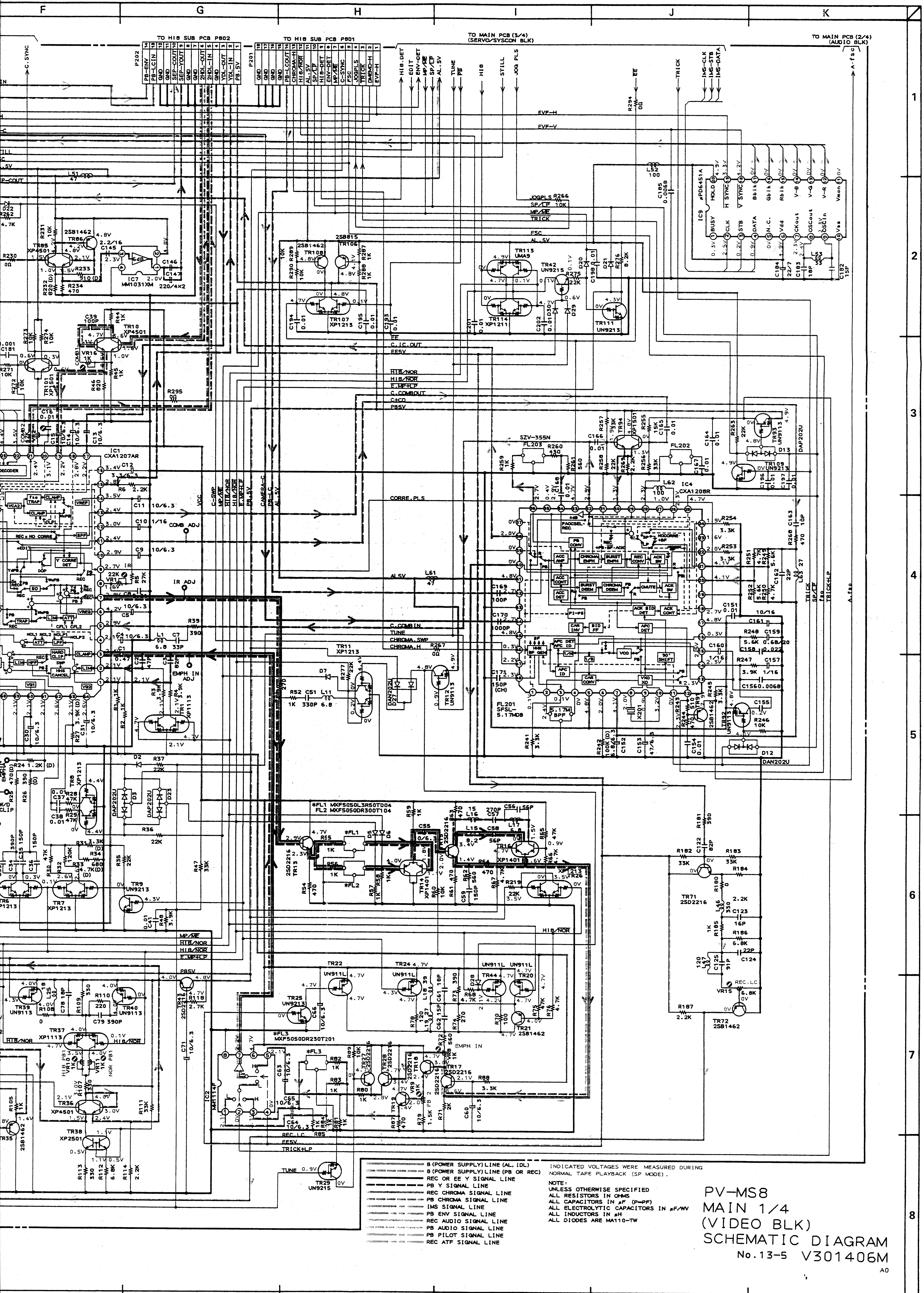
X101	A2,3
X102	B3

FILTER

FL102	C2


A
B
C
D
E
F
TO MAIN PCB (4/4) (OPERATION BLK)
TO MAIN PCB (3/4) (SERVO/SYSCON BLK)
P5
BUSV
D.GND
D.GND
SLEEP
CMR.BUSY
CMR.CLK
CMR.DATA
OPE.DATA
RESET/AC
FSC
IDL-5V
PB-C
GND
CAMERA.C
FADE
PB-Y
GND
CAMERA.Y
EE-5V
DMEMO-H
EVF-V
WINDOW
V-R
R.BLK
TO CAMERA (1) PCB P305
P17
HEAD P.R
HEAD P.L
HEAD P.G
KEY.0
SCAN.0-2
GND
LINE GND
V-OUT
V.GND
AL.5V
LINEOUT L
LINEOUT R
TO A/V JACK BLK
P13
EVF-Y
EVF-G
EVF-5V
EVF-V
EVF-H
TO EVF BLK
IR.ADJ.V
PB LC IN
PB-ENV
CAMERA-C
EDIT-H
STILL
AL.5V
SEP-COUT
IC5 MM1117F
IC6 MM1118F
IC8 MC14053BFR
IC3 BA401F
BUS DECODER
HIB/NOR
REC 5V
PB 5V
REC.Y
REC.ATF
FADE
LINE OUT.R
LINE OUT.L
LINE OUT.G
HEADPHONE.G
HEADPHONE.L
HEADPHONE.R
PB AFM
REC-AFM
PB MONO
REC-ATF
PB PILOT
TO MAIN PCB (2/4) (AUDIO BLK)
TO MAIN PCB (3/4) (SERVO/SYSCON BLK)
P27 (TEST)
PB-ENV
SWP
GND
J15
FE-ON
GND
AL.5V
PB-LC
STILL
SWP
REC-MUTE
REC-Y
REC-SG
GND
PB-ENV
PB-YFM
HIB/NOR
TUNE
ST/MONO
MP/ME
PB 5V
REC.5V
TO PRE AMP PCB P915
A.GND
REC 5V
PB 5V
TO MAIN PCB (2/4) (AUDIO BLK)
MP/ME
HIB/NOR
HI8/NOR
PB-5V
*FL4 MXF3535L5R00T011

MAIN PCB V3014A501A

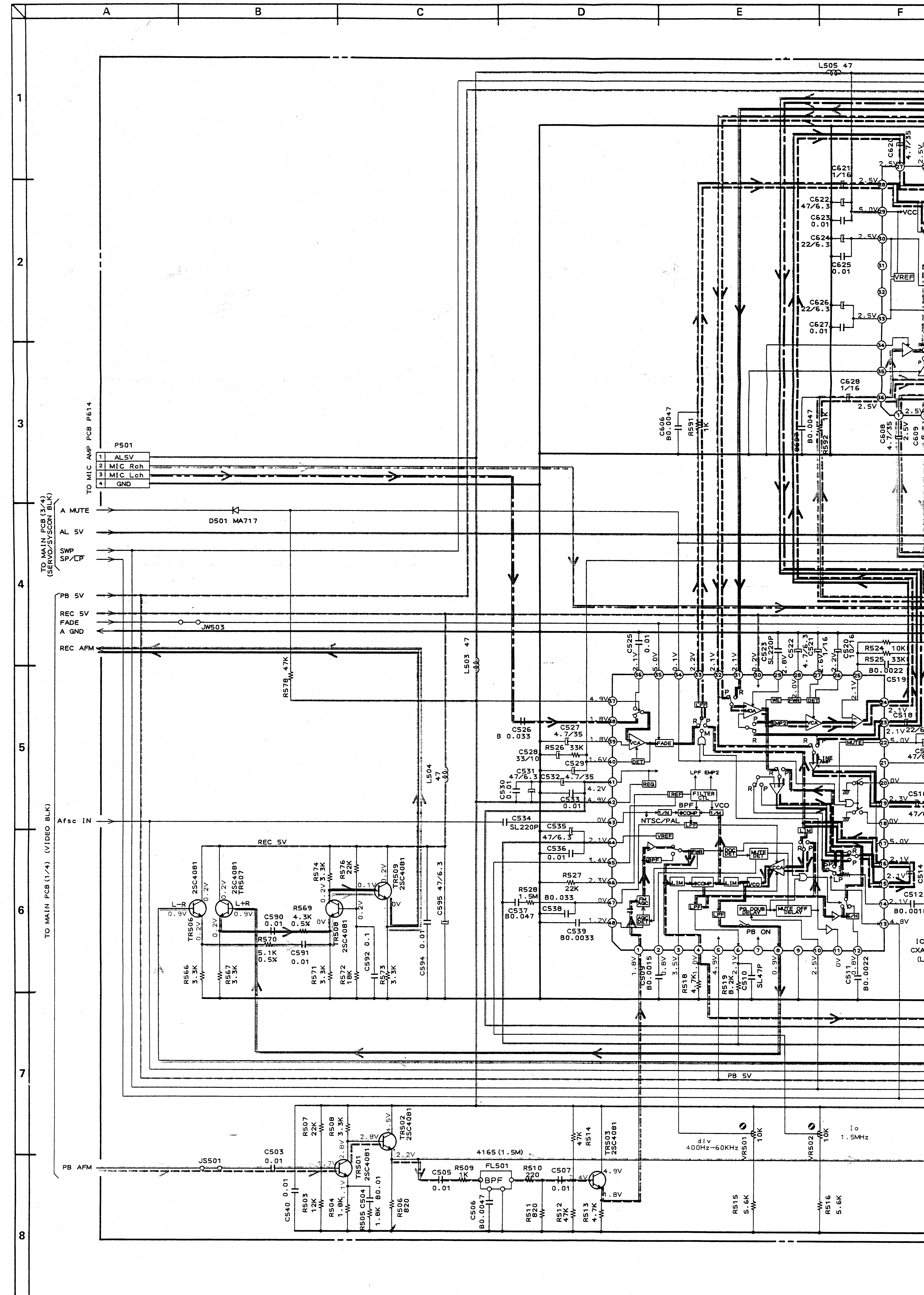

TO H18 SUB PCB P802
TO H18 SUB PCB P801
TO MAIN PCB (3/4) (SERVO/SYSCON BLK)
TO MAIN PCB (2/4) (AUDIO BLK)
P202
P201
PB-ENV
PB-LCIN
SEP-COUT
SEP-YOUT
2HDL-OUT
2HDL-IN
YDL-OUT
YDL-IN
PB.5V
PB-COUT
CHROMA-H
H18/NOR
AL.5V
SP/LP
H18-DET
ENV-DET
MP/ME
C-SYNC
FSC
JOGPLS
TRICK
DNEMO-H
EVF-H
H18.DET
EDIT
ENV-DET
MP/ME
SP/LP
AL.5V
TUNE
PB
H18
STILL
JOG PLS
EE
IMS-CLK
IMS-STB
IMS-DATA
A-fsc
C.SYNC
EVF-H
EVF-V
IC9 μPD6451A
IC7 MM1031XM
IC1 CXA1207AR
IC4 CXA1208R
IC2 MM114F
SZV-355N
FL203
FL202
FL201 SFSL-5.17MDB
*FL1 MXF5050L3R50T004
FL2 MXF5050DR300T104
*FL3 MXF5050DR230T201
COMB ADJ
IR ADJ
EMPH IN ADJ
EMPH IN
CORRE.PLS
C.IC.OUT
EE5V
H18/NOR
E.MP/H.P
C.COMBOUT
C.CCD
PB5V
C.COMBIN
TUNE
CHROMA.SWP
CHROMA.H
REC.LC
EE5V
TRICK+LP
A.fsc
TRICK
SP/LP
f80
TRICK+LP
VCC
C-SWP
CAMERA-C
AL.5V

B (POWER SUPPLY) LINE (AL, IDL)
B (POWER SUPPLY) LINE (PB OR REC)
REC OR EE Y SIGNAL LINE
PB Y SIGNAL LINE
REC CHROMA SIGNAL LINE
PB CHROMA SIGNAL LINE
IMS SIGNAL LINE
PB ENV SIGNAL LINE
REC AUDIO SIGNAL LINE
PB AUDIO SIGNAL LINE
PB PILOT SIGNAL LINE
REC ATF SIGNAL LINE

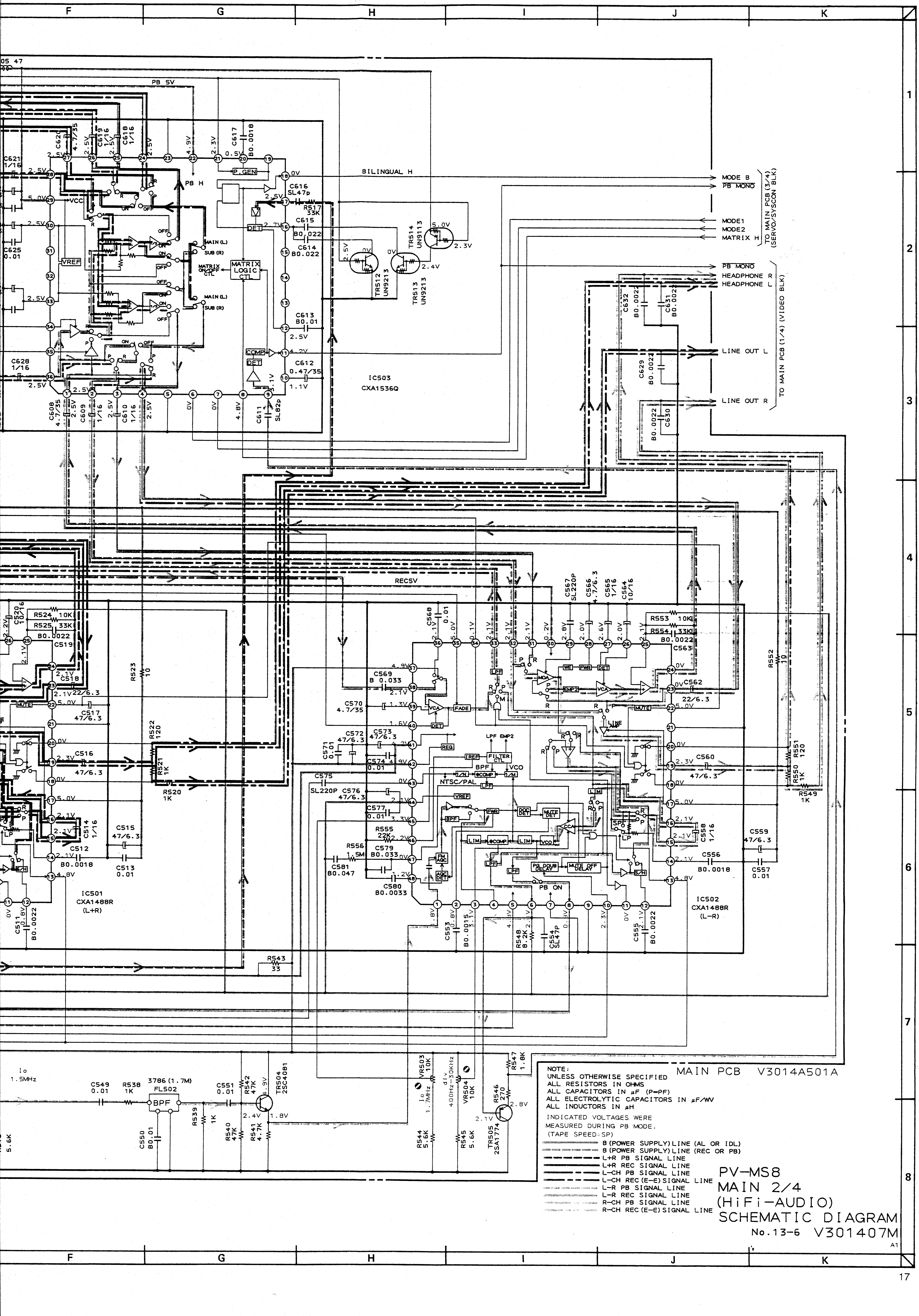
INDICATED VOLTAGES WERE MEASURED DURING NORMAL TAPE PLAYBACK (SP MODE).

NOTE:
UNLESS OTHERWISE SPECIFIED
ALL RESISTORS IN OHMS
ALL CAPACITORS IN μF (P=PF)
ALL ELECTROLYTIC CAPACITORS IN μF/WV
ALL INDUCTORS IN μH
ALL DIODES ARE MA110-TW

PV-MS8
MAIN 1/4
(VIDEO BLK)
SCHEMATIC DIAGRAM
No.13-5 V301406M
A0



TO MIC AMP PCB P614
P501
1 ALSV
2 MIC Rch
3 MIC Lch
4 GND
TO MAIN PCB (3/4) (SERVO/SYSCON BLK)
A MUTE
AL 5V
SWP
SP/LP
D501 MA717
PB 5V
REC 5V
FADE
A GND
REC AFM
JW503
TO MAIN PCB (1/4) (VIDEO BLK)
Afsc IN
PB AFM
JS501
L505 47
L503 47
L504 47
R578 47K
REC 5V
TR506 2SC4081
TR507 2SC4081
TR508 2SC4081
TR509 2SC4081
L-R
L+R
C590 0.01
C591 0.01
R569 4.3K 0.5%
R570 5.1K 0.5%
R566 3.3K
R567 3.3K
R571 3.3K
R572 18K
C592 0.1
R573 3.3K
R574 3.3K
R576 22K
C594 0.01
C595 47/6.3
C606 B0.0047
R591 1K
R592 1K
B0.0047
C608 4.7/35
C609
C620 4.7/35
C621 1/16
C622 47/6.3
C623 0.01
C624 22/6.3
C625 0.01
C626 22/6.3
C627 0.01
C628 1/16
VCC
VREF
C525 0.01
C523 SL220P
C522 4.7/6.3
C521 1/16
C520 10/16
R524 10K
R525 33K
B0.0022
C519
C518 22/6.3
C526 B 0.033
C527 4.7/35
C528 33/10
R526 33K
C529
C531 47/6.3
C532 4.7/35
C530 0.01
C533 0.01
C534 SL220P
C535 47/6.3
C536 0.01
R527 22K
R528 1.5M
B0.033
C537 B0.047
C538
C539 B0.0033
C509 B0.0015
R518 4.7K
R519 8.2K
C510 SL47P
C511 10/16
B0.0022
C512
C514
B0.001
VCA
DET
FADE
REG
IREF
FILTER CTL
LPF EMP2
BPF
VCO
NTSC/PAL
VREF
FWR
DOC DET
MUTE DET
LIM
COMP
CCA
FM AGC
AGC DET
PB DOUB DELAY
MUTE OFF DELAY
PB ON
WE
MUTE
EMP2
MOA
LINE
S/H
IC
CXA
PB 5V
R507 22K
R508 3.3K
TR501 2SC4081
TR502 2SC4081
TR503 2SC4081
C503 0.01
C540 0.01
R503 12K
R504 1.8K
C504 B0.01
R505 1.8K
R506 820
4165 (1.5M)
FL501 BPF
C505 0.01
R509 1K
C506 B0.0047
R510 220
C507 0.01
R511 820
R512 47K
R513 4.7K
R514 47K
VR501 10K
div 400Hz–60KHz
VR502 10K
Io 1.5MHz
R515 5.6K
R516 5.6K
A B C D E F
1 2 3 4 5 6 7 8


F
G
H
I
J
K
1
2
3
4
5
6
7
8
PB 5V
PB H
BILINGUAL H
MODE B
PB MONO
MODE1
MODE2
MATRIX H
TO MAIN PCB (3/4) (SERVO/SYSCON BLK)
PB MONO
HEADPHONE R
HEADPHONE L
LINE OUT L
LINE OUT R
TO MAIN PCB (1/4) (VIDEO BLK)
MATRIX LOGIC CTL
MATRIX ON/OFF CTL
P.GEN
DET
COMP DET
VREF
VCC
MAIN (L)
SUB (R)
IC503
CXA1536Q
TR512
UN9213
TR513
UN9213
TR514
UN9113
C616
SL47p
R517
33K
C615
B0.022
C614
B0.022
C613
B0.01
C612
0.47/35
C617
B0.0018
C618
1/16
C619
1/16
C620
4.7/35
C621
1/16
C625
0.01
C628
1/16
C608
4.7/35
C609
C610
1/16
C611
SL82p
C632
B0.0022
C631
B0.0022
C629
B0.0022
C630
B0.0022
REC5V
IC501
CXA1488R
(L+R)
IC502
CXA1488R
(L−R)
R524
10K
R525
33K
B0.0022
C520
10/16
C519
C518
C517
47/6.3
C516
47/6.3
C515
47/6.3
C514
1/16
C513
0.01
C512
B0.0018
C511
B0.0022
R523
10
R522
120
R521
1K
R520
1K
MUTE
R553
10K
R554
33K
B0.0022
C563
C562
22/6.3
C567
SL220P
C566
4.7/6.3
C565
1/16
C564
10/16
C568
0.01
C569
B 0.033
C570
4.7/35
C571
0.01
C572
47/6.3
C573
47/6.3
C574
0.01
C575
SL220P
C576
47/6.3
C577
0.01
R555
22K
R556
1.5M
C579
B0.033
C581
B0.047
C580
B0.0033
C553
B0.0015
R548
8.2K
C554
SL47P
C555
B0.0022
R552
10
R551
120
R550
1K
R549
1K
C560
47/6.3
C558
1/16
C559
47/6.3
C556
B0.0018
C557
0.01
VCA
FADE
DET
REG
IREF
FILTER CTL
LPF
EMP2
BPF
VCO
1/N
COMP
NTSC/PAL
MOA
WE
FWR
EMP2
LINE
SP
LP
LIM
DOC DET
MUTE DET
CCA
FM AGC
AGC DET
PB DOUB DELAY
MUTE OFF DELAY
S/H
PB ON
R543
33
Io
1.5MHz
C549
0.01
R538
1K
3786 (1.7M)
FL502
BPF
C550
B0.01
R539
1K
C551
0.01
R540
47K
R541
4.7K
R542
47K
TR504
2SC4081
VR503
10K
Io
1.7MHz
VR504
10K
dlv
400Hz−30KHz
R544
5.6K
R545
5.6K
R546
270
R547
1.8K
TR505
2SA1774
5.6K

MAIN PCB V3014A501A

NOTE:
UNLESS OTHERWISE SPECIFIED
ALL RESISTORS IN OHMS
ALL CAPACITORS IN µF (P=PF)
ALL ELECTROLYTIC CAPACITORS IN µF/WV
ALL INDUCTORS IN µH

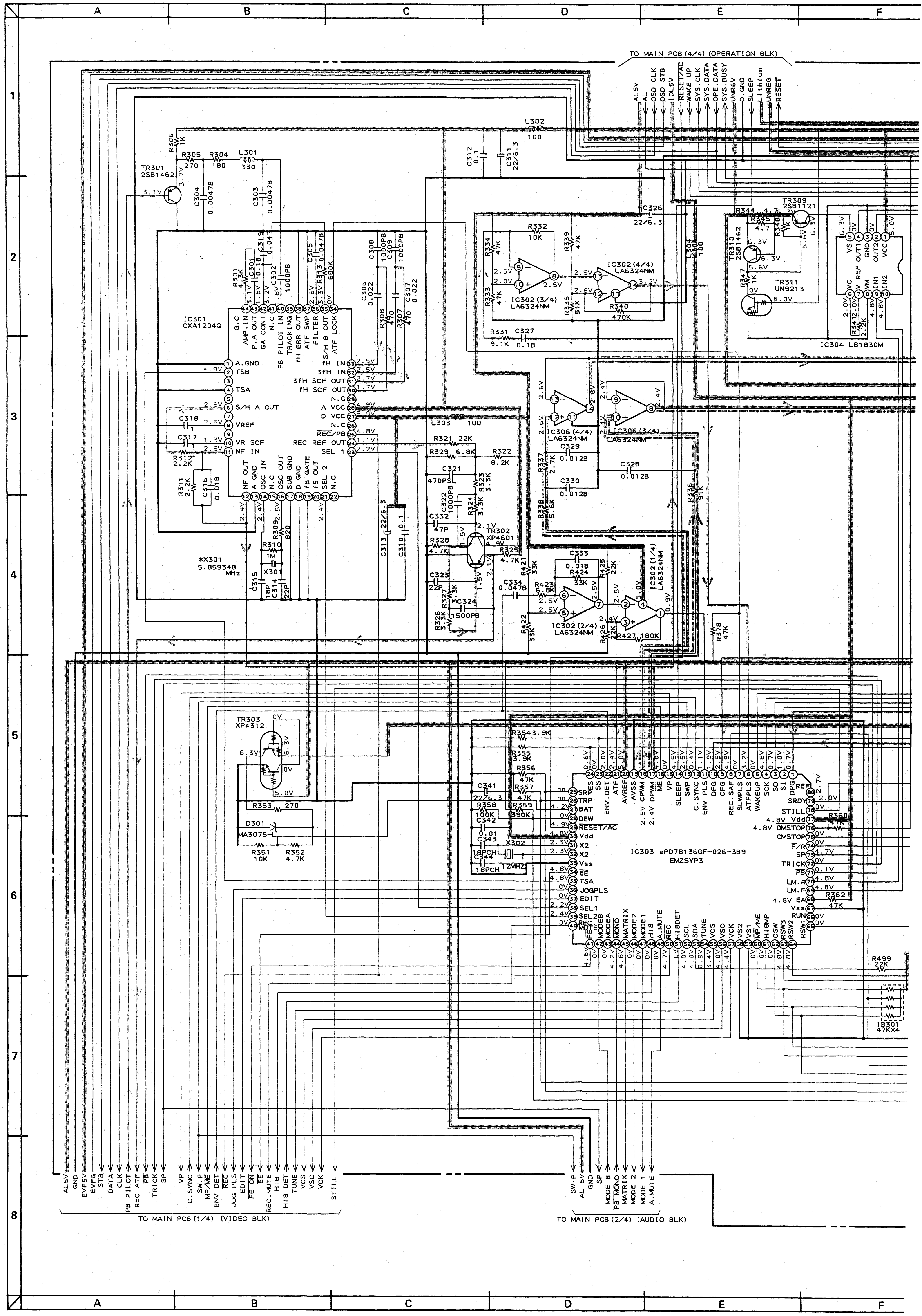
INDICATED VOLTAGES WERE
MEASURED DURING PB MODE.
(TAPE SPEED: SP)

B (POWER SUPPLY) LINE (AL OR IDL)
B (POWER SUPPLY) LINE (REC OR PB)
L+R PB SIGNAL LINE
L+R REC SIGNAL LINE
L−CH PB SIGNAL LINE
L−CH REC (E−E) SIGNAL LINE
L−R PB SIGNAL LINE
L−R REC SIGNAL LINE
R−CH PB SIGNAL LINE
R−CH REC (E−E) SIGNAL LINE

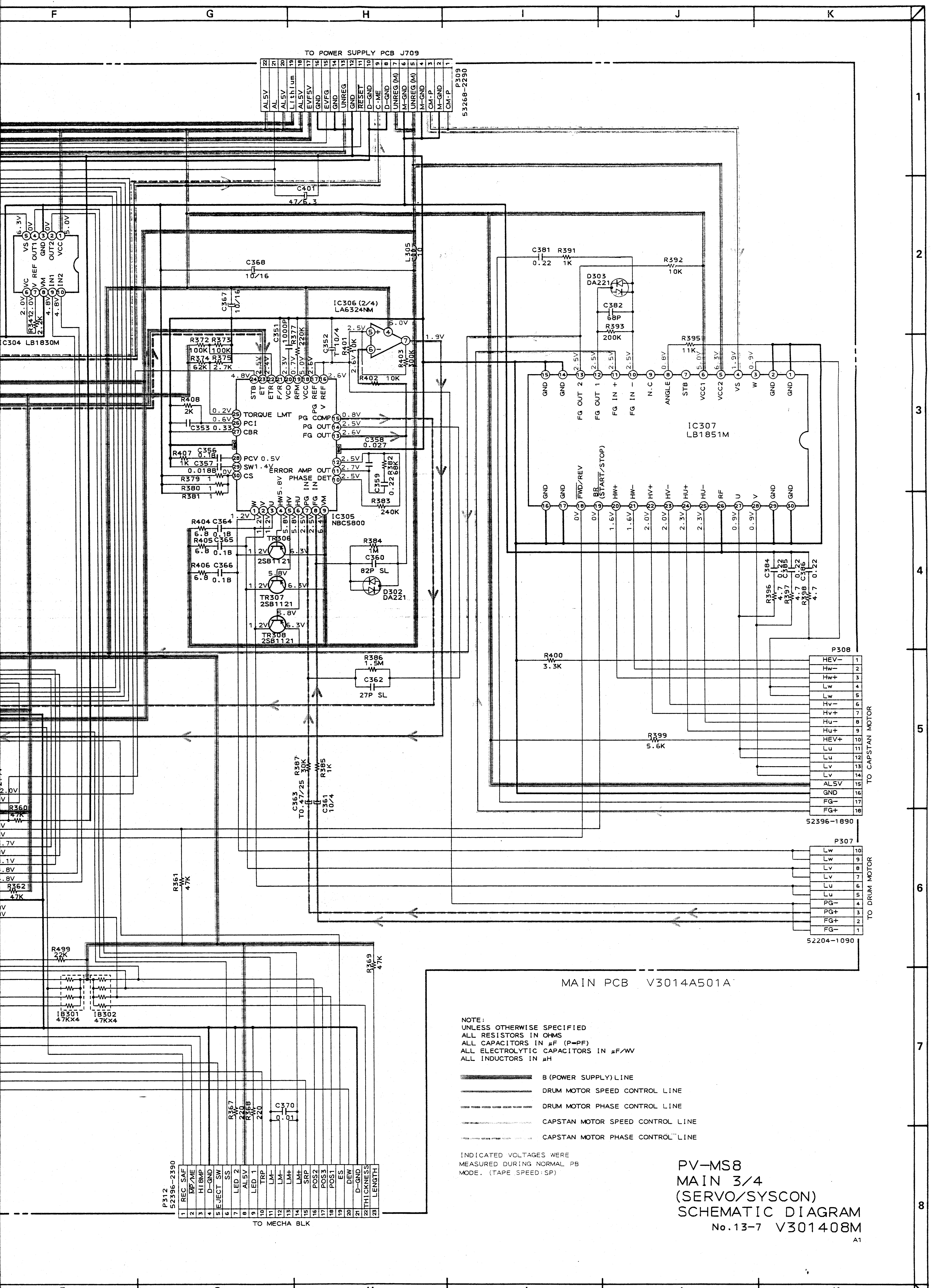
PV−MS8
MAIN 2/4
(HiFi−AUDIO)
SCHEMATIC DIAGRAM

No.13−6 V301407M

A1



A
B
C
D
E
F
1
2
3
4
5
6
7
8
TO MAIN PCB (4/4) (OPERATION BLK)
ALSV
AL
OSD CLK
OSD STB
IDLSV
RESET/AC
WAKE UP
SYS.CLK
SYS.DATA
OPE.DATA
SYS.BUSY
UNR6V
D.GND
SLEEP
Lithium
UNREG
RESET
L302 100
C312 0.1
C311 22/6.3
R306 1K
R305 270
R304 180
L301 330
TR301 2SB1462
C304 0.0047B
C303 0.0047B
IC301 CXA1204Q
C326 22/6.3
L304 100
R332 10K
R334 47K
R339 47K
R333 47K
R335 51K
R340 470K
IC302 (3/4) LA6324NM
IC302 (4/4) LA6324NM
R331 9.1K
C327 0.1B
TR309 2SB1121
R344 4.7
R345 4.7
R346 1K
TR310 2SB1462
R347 1K
TR311 UN9213
IC304 LB1830M
VS
REF
OUT1
GND
OUT2
VCC
VC
VM
IN1
IN2
A.GND
TSB
TSA
S/H A OUT
VREF
VR SCF
NF IN
fH IN
3fH IN
3fH SCF OUT
fH SCF OUT
N.C
A VCC
D VCC
REC/PB
REC REF OUT
SEL 1
G.C
AMP.IN
P.A OUT
GA CONT
PB PILOT IN
TRACKING
fH ERR OUT
ATF SWP
FILTER
S/H B OUT
ATF LOCK
NF OUT
A GND
OSC IN
OSC OUT
SUB GND
D GND
f5 GATE
f5 OUT
SEL 2
C318
C317
R312 2.2K
R311 2.2K
C316 0.01B
C301 0.1B
C302 1000PB
C319 0.047
C305 0.047B
R313 680K
R301 4.3K
C306 0.022
C308 1000PB
C309 1000PB
C307 0.022
R308 470
R307 470
R309 820
R310 1M
X301
*X301 5.859348 MHz
C315 18P
C314 22P
C313 22/6.3
C310 0.1
L303 100
R321 22K
R329 6.8K
R322 8.2K
C321 470PS
C322 1000PB
R323 3.3K
R324 3.3K
C332 47P
R328 4.7K
TR302 XP4601
R325 4.7K
C323 22P
R326 3.3K
R327 3.3K
C324 1500PB
IC306 (4/4) LA6324NM
IC306 (3/4) LA6324NM
C329 0.012B
C328 0.012B
C330 0.012B
R337 2.7K
R338 5.6K
R336 91K
C333 0.01B
R424 33K
R425 22K
R421 33K
R423 6.8K
C334 0.047B
IC302 (1/4) LA6324NM
IC302 (2/4) LA6324NM
R422 33K
R426 22K
R427 180K
R318 47K
TR303 XP4312
R353 270
D301 MA3075
R351 10K
R352 4.7K
R354 3.9K
R355 3.9K
R356 47K
R357 47K
C341 22/6.3
R358 100K
R359 390K
C342 0.01
C343 18PCH
X302 12MHZ
C344 18PCH
IC303 μPD78136GF-026-3B9 EMZSYP3
SRP
TRP
BAT
DEW
RESET/AC
Vdd
X2
X2
Vss
EE
TSA
JOGPLS
EDIT
SEL1
SEL2
REC MUTE
ES
SS
ENV.DET
ATF
AVREF
AVSS
CPMM
DPMM
ME
VP
SLEEP
SWP
C.SYNC
ENV PLS
DFG
CFG
REC.SAF
SLWPLS
ATFPLS
WAKEUP
SCK
SO
SI
DPG
REF
SRDY
STILL
Vdd
DMSTOP
CMSTOP
F/R
SP
TRICK
PB
LM.R
LM.F
EA
Vss
RUN
RSW1
RSW2
RSW3
CSW
HIBMP
MP.ME
VS1
VS2
VCK
VSO
VCS
TUNE
SDA
SCL
HI8DET
REC
A.MUTE
MODE1
MODE2
MATRIX
MODE A
MODE B
FE
R360 47K
R362 47K
R499 22K
IB301 47KX4
ALSV
GND
EVF5V
EVFG
STB
DATA
CLK
PB PILOT
REC ATF
PB
TRICK
SP
VP
C.SYNC
SW.P
MP/ME
ENV DET
REC
JOG PLS
EDIT
FE ON
EE
REC.MUTE
HI8
HI8 DET
TUNE
VCS
VSO
VCK
STILL
TO MAIN PCB (1/4) (VIDEO BLK)
SW.P
AL 5V
GND
SP
MODE B
PB MONO
MATRIX
MODE 2
MODE 1
A.MUTE
TO MAIN PCB (2/4) (AUDIO BLK)


F
G
H
I
J
K
1
2
3
4
5
6
7
8
TO POWER SUPPLY PCB J709
P309
53268-2290
AL5V
AL
AL5V
Lithium
AL5V
EVF5V
GND
EVFG
GND
UNREG
GND
RESET
D-GND
C-ME
D-GND
UNREG (M)
M-GND
UNREG (M)
M-GND
CM-P
M-GND
CM-P
C401
47/6.3
L305
10
C368
10/16
C367
10/16
IC304 LB1830M
IC306 (2/4)
LA6324NM
R372
R373
100K
100K
R374
R375
62K
2.7K
C351
1000P
R377
220K
C352
10/4
R401
10K
R402 10K
R403
300K
R408
2K
C353 0.33
R407
1K
C356
0.18
C357
0.0188
R379 1
R380 1
R381 1
TORQUE LMT
PCI
CBR
PCV 0.5V
SW1 1.4V
CS
STB
ETR
ETR
F/R
VCO
RFM
VCC
REF
REF
PG COMP
PG OUT
FG OUT
ERROR AMP OUT
PHASE DET
C358
0.027
C359
0.22
R382
68K
R383
240K
IC305
NBC5800
R404 C364
6.8 0.18
R405 C365
6.8 0.18
R406 C366
6.8 0.18
TR306
2SB1121
TR307
2SB1121
TR308
2SB1121
R384
1M
C360
82P SL
D302
DA221
R386
1.5M
C362
27P SL
R387
30K
R385
1K
C363
TO.47/25
C361
10/4
C381 0.22
R391 1K
R392 10K
D303
DA221
C382
68P
R393
200K
R395
11K
IC307
LB1851M
GND
FG OUT 2
FG OUT 1
FG IN +
FG IN -
N.C
ANGLE
STB
VCC1
VCC2
VS
W
GND
FWD/REV
BR (START/STOP)
HW+
HW-
HV+
HV-
HU+
HU-
RF
U
V
C384
C385
C386
0.22
R396
R397
R398
4.7
R400
3.3K
R399
5.6K
P308
HEV-
Hw-
Hw+
Lw
Lw
Hv-
Hv+
Hu-
Hu+
HEV+
Lu
Lu
Lv
Lv
AL5V
GND
FG-
FG+
52396-1890
TO CAPSTAN MOTOR
P307
Lw
Lw
Lv
Lv
Lu
Lu
PG-
PG+
FG+
FG-
52204-1090
TO DRUM MOTOR
R360
47K
R362
47K
R361
47K
R499
22K
IB301
47KX4
IB302
47KX4
R369
47K
R367
220
R368
220
C370
0.01
P312
52396-2390
REC SAF
MP/ME
HI8MP
D-GND
EJECT SW
SS
LED 2
AL5V
LED 1
TRP
LM-
LM-
LM+
SRP
POS2
POS3
POS1
ES
DEW
D-GND
THICKNESS
LENGTH
TO MECHA BLK

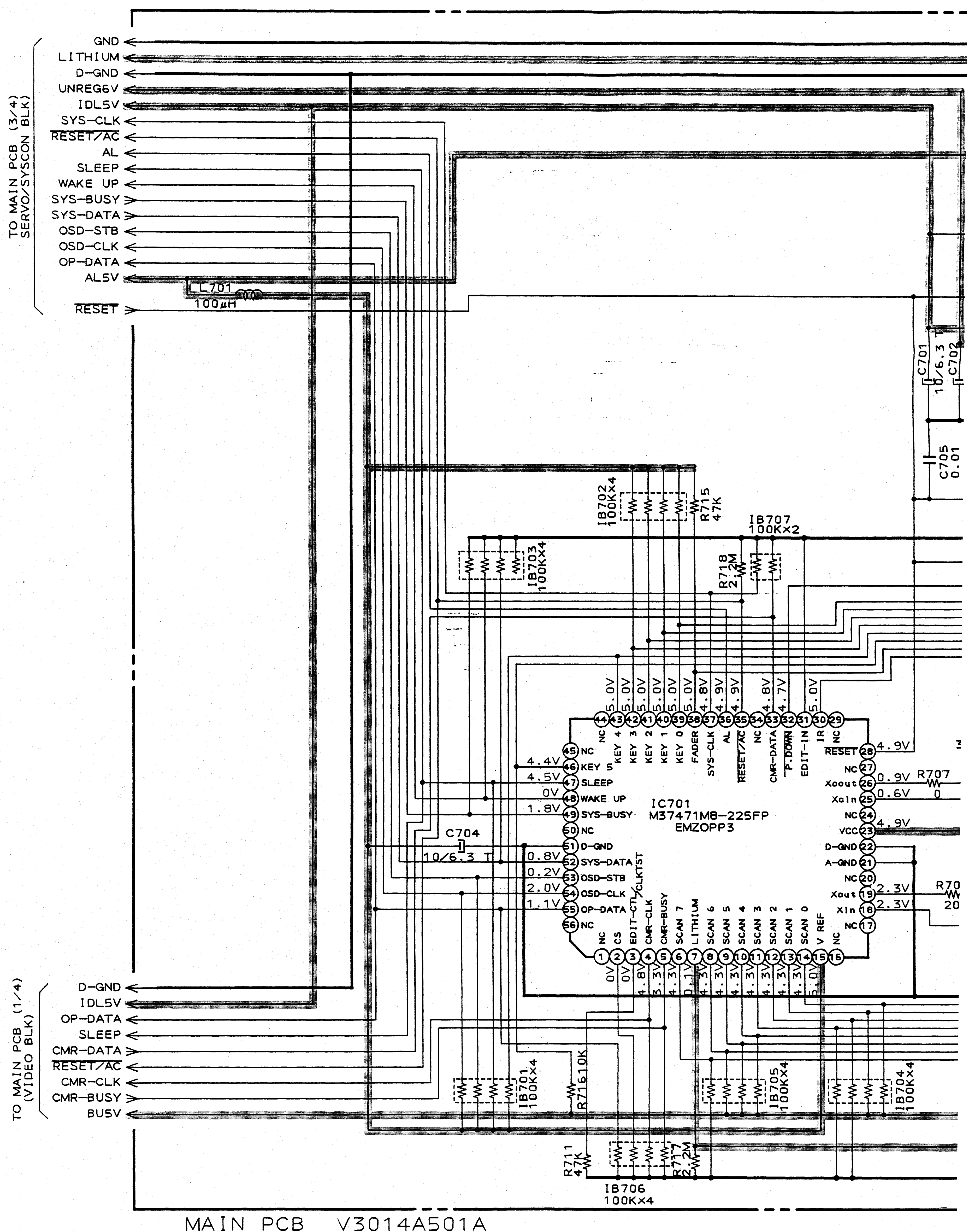
MAIN PCB V3014A501A

NOTE:
UNLESS OTHERWISE SPECIFIED
ALL RESISTORS IN OHMS
ALL CAPACITORS IN μF (P=PF)
ALL ELECTROLYTIC CAPACITORS IN μF/WV
ALL INDUCTORS IN μH

▬	B (POWER SUPPLY) LINE
▬	DRUM MOTOR SPEED CONTROL LINE
▬	DRUM MOTOR PHASE CONTROL LINE
▬	CAPSTAN MOTOR SPEED CONTROL LINE
▬	CAPSTAN MOTOR PHASE CONTROL LINE

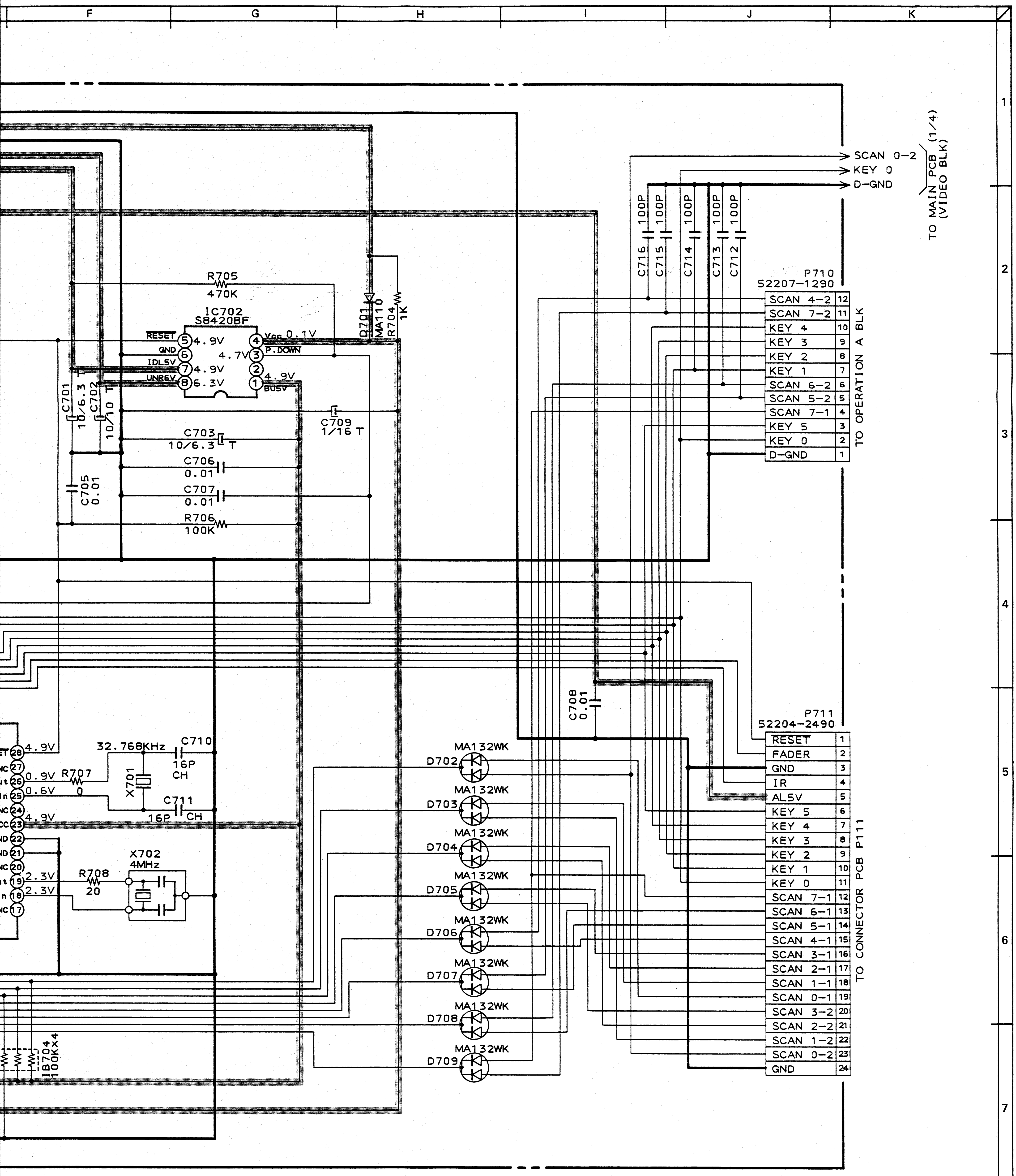
INDICATED VOLTAGES WERE MEASURED DURING NORMAL PB MODE. (TAPE SPEED:SP)

PV-MS8
MAIN 3/4
(SERVO/SYSCON)
SCHEMATIC DIAGRAM
No.13-7 V301408M
A1


TO MAIN PCB (3/4) SERVO/SYSCON BLK)
GND
LITHIUM
D-GND
UNREG6V
IDL5V
SYS-CLK
RESET/AC
AL
SLEEP
WAKE UP
SYS-BUSY
SYS-DATA
OSD-STB
OSD-CLK
OP-DATA
AL5V
RESET
L701
100μH
TO MAIN PCB (1/4) (VIDEO BLK)
D-GND
IDL5V
OP-DATA
SLEEP
CMR-DATA
RESET/AC
CMR-CLK
CMR-BUSY
BU5V
IB702 100K×4
R715 47K
IB707 100K×2
R718 2.2M
IB703 100K×4
C701 10/6.3
C702
C705 0.01
IC701
M37471M8-225FP
EMZOPP3
C704 10/6.3 T
R707 0
R70 20
IB701 100K×4
R716 10K
IB705 100K×4
IB704 100K×4
R711 47K
R717 2.2M
IB706 100K×4
(44) NC
(43) KEY 4
(42) KEY 3
(41) KEY 2
(40) KEY 1
(39) KEY 0
(38) FADER
(37) SYS-CLK
(36) AL
(35) RESET/AC
(34) NC
(33) CMR-DATA
(32) P.DOWN
(31) EDIT-IN
(30) IR
(29) NC
(45) NC
(46) KEY 5
(47) SLEEP
(48) WAKE UP
(49) SYS-BUSY
(50) NC
(51) D-GND
(52) SYS-DATA
(53) OSD-STB
(54) OSD-CLK
(55) OP-DATA
(56) NC
(28) RESET
(27) NC
(26) Xcout
(25) Xcin
(24) NC
(23) VCC
(22) D-GND
(21) A-GND
(20) NC
(19) Xout
(18) Xin
(17) NC
(1) NC
(2) CS
(3) EDIT-CTL/CLKTST
(4) CMR-CLK
(5) CMR-BUSY
(6) SCAN 7
(7) LITHIUM
(8) SCAN 6
(9) SCAN 5
(10) SCAN 4
(11) SCAN 3
(12) SCAN 2
(13) SCAN 1
(14) SCAN 0
(15) V REF
(16) NC
5.0V
5.0V
5.0V
5.0V
5.0V
5.0V
4.8V
4.9V
4.9V
4.8V
4.7V
5.0V
4.4V
4.5V
0V
1.8V
0.8V
0.2V
2.0V
1.1V
4.9V
0.9V
0.6V
4.9V
2.3V
2.3V
0V
0V
4.8V
3.3V
4.3V
0.1V
4.3V
4.3V
4.3V
4.3V
4.3V
4.3V
4.3V
5.0V
MAIN PCB V3014A501A

INDICATED VOLTAGES WERE
MEASURED DURING PB MODE.
(TAPE SPEED: SP)
(WITHOUT LITHIUM BATTERY)

▨ B (POWER SUPPLY) LINE


F
G
H
I
J
K
1
2
3
4
5
6
7
SCAN 0-2
KEY 0
D-GND
TO MAIN PCB (1/4)
(VIDEO BLK)
C716 100P
C715 100P
C714 100P
C713 100P
C712 100P
P710
52207-1290
SCAN 4-2 12
SCAN 7-2 11
KEY 4 10
KEY 3 9
KEY 2 8
KEY 1 7
SCAN 6-2 6
SCAN 5-2 5
SCAN 7-1 4
KEY 5 3
KEY 0 2
D-GND 1
TO OPERATION A BLK
R705
470K
IC702
S8420BF
RESET 5 4.9V
GND 6
IDL5V 7 4.9V
UNR6V 8 6.3V
4 Vcc 0.1V
4.7V 3 P.DOWN
2
1 4.9V BU5V
D701 MA110
R704 1K
C701 10/6.3 T
C702 10/10 T
C709 1/16 T
C703 10/6.3 T
C706 0.01
C707 0.01
C705 0.01
R706 100K
C708 0.01
P711
52204-2490
RESET 1
FADER 2
GND 3
IR 4
AL5V 5
KEY 5 6
KEY 4 7
KEY 3 8
KEY 2 9
KEY 1 10
KEY 0 11
SCAN 7-1 12
SCAN 6-1 13
SCAN 5-1 14
SCAN 4-1 15
SCAN 3-1 16
SCAN 2-1 17
SCAN 1-1 18
SCAN 0-1 19
SCAN 3-2 20
SCAN 2-2 21
SCAN 1-2 22
SCAN 0-2 23
GND 24
TO CONNECTOR PCB P111
32.768KHz
C710 16P CH
C711 16P CH
X701
R707 0
28 4.9V
27
26 0.9V
25 0.6V
24
23 4.9V
22
21
20
19 2.3V
18 2.3V
17
X702 4MHz
R708 20
MA132WK D702
MA132WK D703
MA132WK D704
MA132WK D705
MA132WK D706
MA132WK D707
MA132WK D708
MA132WK D709
RB704 100Kx4

NOTE;
UNLESS OTHERWISE SPECIFIED
ALL RESISTORS IN OHMS
ALL CAPACITORS IN μF (P=PF)
ALL ELECTROLYTIC CAPACITORS IN μF/WV

PV-MS8
MAIN 4/4
(OPERATION BLK)
SCHEMATIC DIAGRAM
No.13-8 V301409M
A2

PRINCIPAL PARTS LOCATION

ICs	
IC2	C2
IC3	D4
IC5	C4
IC7	C3
IC303	B2
IC304	B1
IC305	B4

TRANSISTORs	
TR4	D3
TR5	D3
TR17	D2
TR18	D2
TR19	D2
TR20	C2
TR21	C2
TR22	C2
TR23	C2
TR24	C2
TR25	C2
TR26	C,D2
TR28	D2
TR29	D2
TR30	C2
TR44	C2
TR48	C4
TR51	E3
TR52	D3
TR53	D4
TR54	D4
TR55	D4
TR56	D3
TR57	D3
TR58	D4
TR59	D4
TR74	E3
TR79	D2
TR80	D2
TR102	E4
TR103	E4
TR104	E4
TR105	E3
TR109	C1
TR113	C2
TR114	C2
TR115	C2
TR116	E4
TR301	B3
TR302	B3
TR306	B4
TR310	B1
TR311	B1

DIODEs	
D1	C2
D8	D3
D9	D3
D10	D3
D11	D3.4
D14	B4
D15	B4
D16	E4
D18	D2
D19	D2
D22	C1
D24	D3
D501	D1
D704	A3
D705	A3
D706	A1
D707	A1
D708	A1
D709	A1

CONNECTORs	
P5	B,C4
P13	D4
P17	D4
P27	E4
P201	C1
P202	C2
P312	B,C1
P501	E4
P710	A,B1
P711	A,B4

INDUCTORs	
L2	C4
L3	C3
L31	D4
L32	D3
L33	E4
L34	D4
L35	D3
L36	D4
L37	E3
L48	E3
L51	C3
L61	C1
L301	B3
L302	A,B3
L303	A,B3
L305	A3
L701	A2

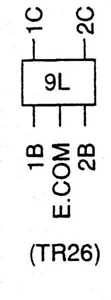
FILTERs	
FL1	D2
FL2	D2
FL3	C2
EL4	D3
FL201	D1
FL202	C1
FL203	D1
FL501	E3
FL502	E3

INTEGRATED BLOCKs	
IB704	A1
IB705	A1
IB706	A1
IB707	A1

X'TALs	
X201	D1
X301	A3
X302	B1
X701	A1

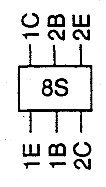
VARIABLE RESISTORs	
VR1	C3
VR2	C3
VR3	C3
VR4	D3
VR5	D3
VR6	D3
VR7	D3
VR8	D2
VR9	D2
VR10	C,D4
VR11	C,D4
VR12	D4
VR13	E4
VR14	E4
VR15	D2
VR16	C3
VR501	E2,3
VR502	E3
VR503	D3
VR504	D3

XP1213
(NPN WITH RESISTORs x 2)


1C
2C
9L
1B
E.COM
2B

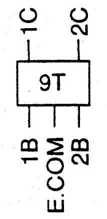
(TR26)

XP4213
(NPN WITH RESISTORs x 2)


1C
2B
2E
8S
1E
1B
2C

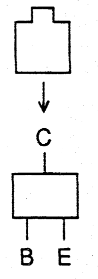
(TR104)

XP1211
(NPN WITH RESISTORs x 2)

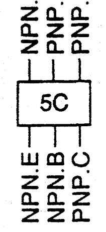

1C
2C
9T
1B
E.COM
2B

(TR114)

SINGLE CHIP TRANSISTOR

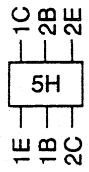


XP4601
(PNP & NPN)


NPN.C
PNP.B
PNP.E
5C
NPN.E
NPN.B
PNP.C

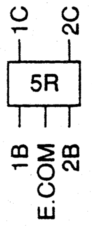
(TR302)

XP4501
(NPN x 2)


1C
2B
2E
5H
1E
1B
2C

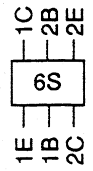
(TR51)

XP1501
(NPN x 2)


1C
2C
5R
1B
E.COM
2B

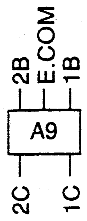
(TR59)

XP4113
(PNP WITH RESISTORs x 2)


1C
2B
2E
6S
1E
1B
2C

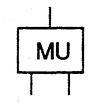
(TR5)

UMA9
(PNP WITH RESISTORs x 2)


2B
E.COM
1B
A9
2C
1C

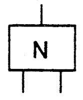
(TR113)

MA132WK


1K,2K
MU
1A
2A

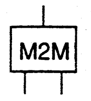
(D704 to 709)

DAN202U

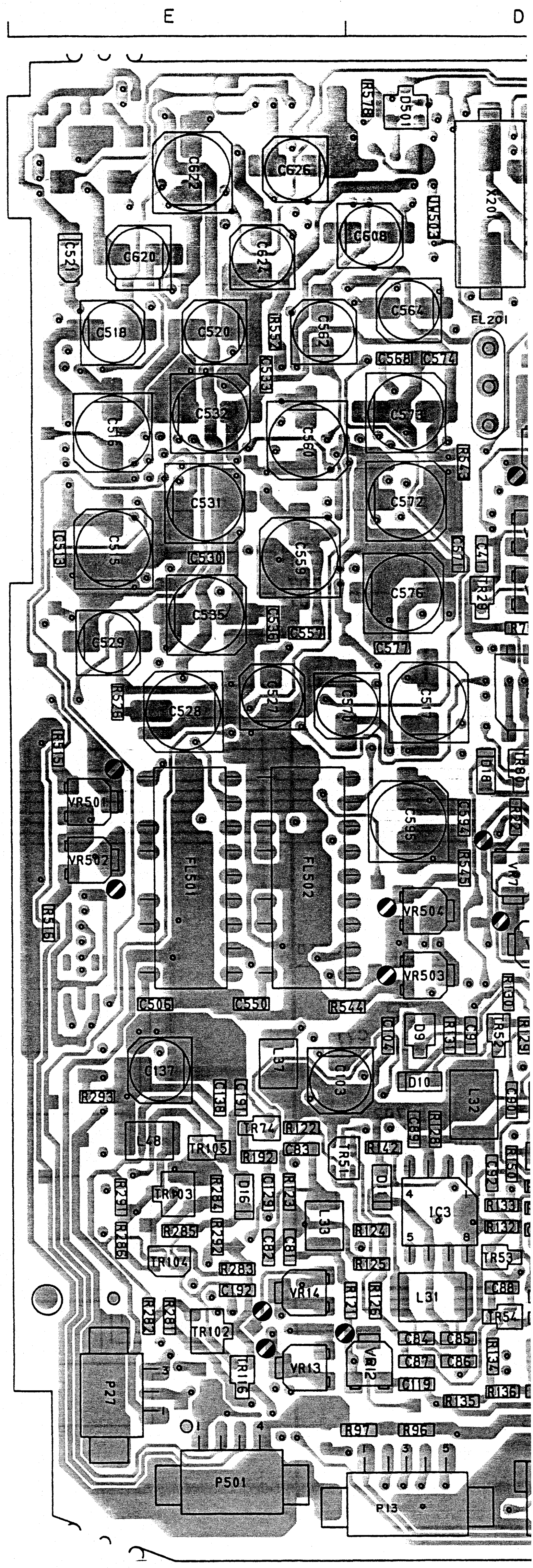


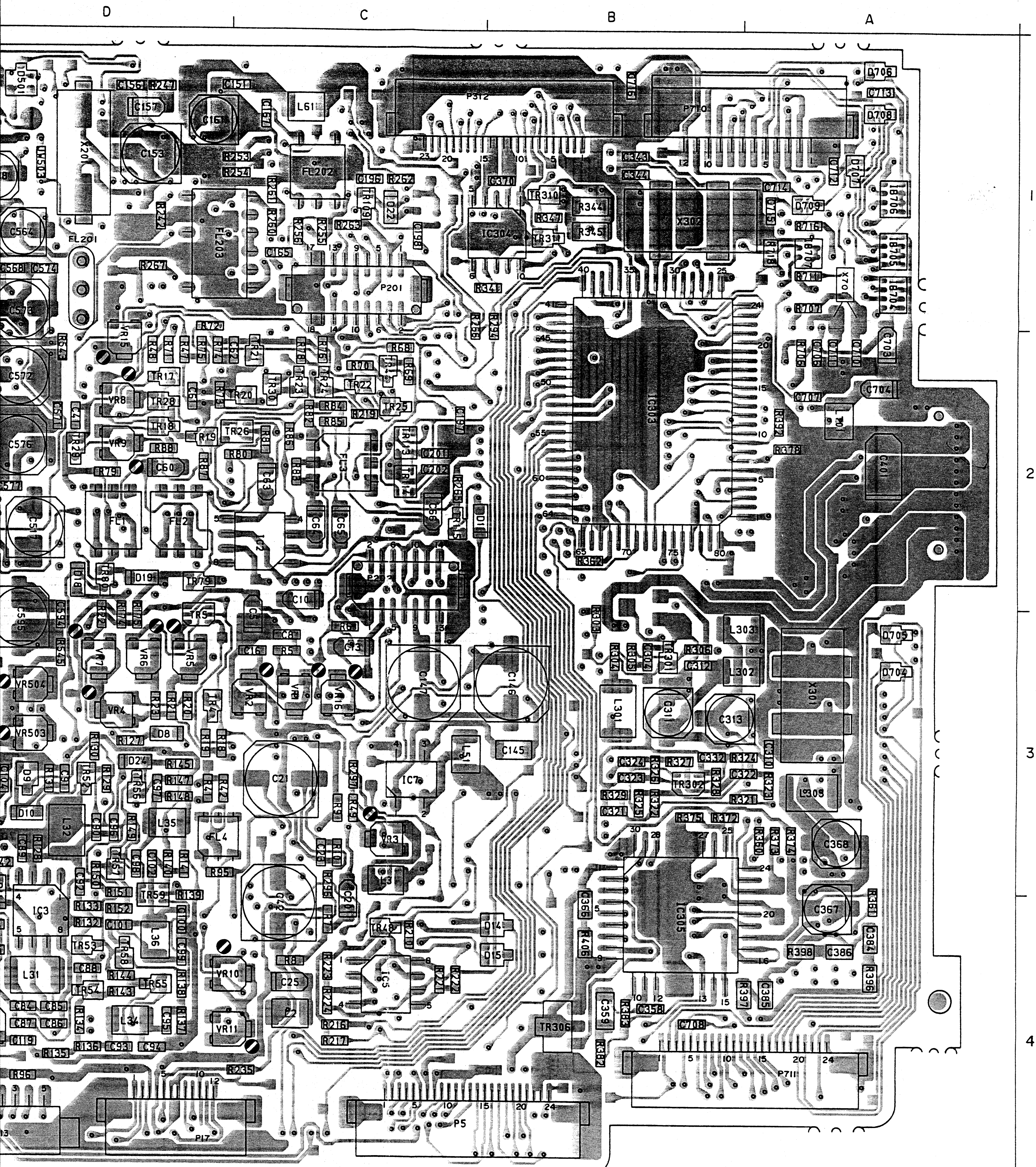
(D14,15)

MA717



(D501)


E
D
C622
C626
X201
C608
C620
C621
C521
C518
C520
C564
FL201
C568
C574
C516
C532
C560
C578
C531
C572
C513
C515
C530
C559
C576
C535
C529
C557
C577
C528
VR501
VR502
FL501
FL502
VR504
VR503
C506
C550
R544
C137
C103
L37
D10
L32
R293
L48
TR105
TR74
R122
C83
TR51
R142
TR103
D16
D11
IC3
R285
R124
R133
R132
TR104
R283
R125
TR53
C192
VR14
L31
C88
TR102
VR13
VR12
TR57
C84
C85
C87
C86
C119
R136
R135
P27
R97
R96
P501
P13


D
C
B
A
1
2
3
4
IC303
IC305
IC304
IC7
IC5
IC3
IC2
P312
P710
P201
P711
P5
P17
X301
X302
X201
C21
C147
C146
C313
C311
C368
C367
C153
C163
FL201
FL202
FL203
L61
L301
L302
L303
L308

MAIN PCB V3014A501AJ1(BOTTOM)

PRINCIPAL PARTS LOCATION

ICs

IC1	C3
IC4	D1
IC6	C4
IC8	C3,4
IC9	C1
IC301	A,B3
IC302	B2
IC306	B2
IC307	A3,4
IC501	E2
IC502	D2
IC503	E1
IC701	A1
IC702	A2

CONNECTORs

J15	E4
P307	B4
P308	A4
P309	A2

INDUCTORs

L1	C2
L11	C2
L15	C,D2
L16	C2
L17	C2
L18	D2
L19	D2
L22	D4
L24	D4
L25	C4
L41	D4
L42	D4
L43	D3
L44	D3
L46	C,D2
L47	D1,2
L52	C1
L53	B1
L62	C1
L63	C1
L304	B1
L503	E1
L504	D2,3
L505	E1

X'TAL

X702	A2

DIODEs

D2	D2
D3	D2
D5	D2
D6	D2
D7	C2
D12	D1
D13	C1
D20	C2
D21	C2
D23	D2
D27	C2
D28	C2
D29	C2
D30	C2
D301	B1
D302	B4
D303	A3
D701	A2
D702	A3
D703	A3

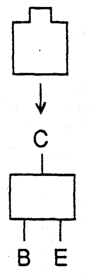
TRANSISTORs

TR1	D2
TR2	D3
TR3	D3
TR6	D3
TR7	D3
TR8	D3
TR9	D3
TR10	C2,3
TR11	C2
TR12	C2
TR13	C2
TR14	D2
TR15	D2
TR16	C2
TR27	D2
TR31	D4
TR32	D4
TR34	D3,4
TR35	D4
TR36	C4
TR37	C4
TR38	D4
TR39	C4
TR40	C4
TR41	D4
TR42	C2
TR43	D3
TR61	D4
TR62	D4
TR63	D3
TR64	D4
TR65	D3
TR71	C1,2
TR72	D2
TR73	E3
TR75	E3
TR77	E3,4
TR78	E4
TR81	B3
TR82	B3
TR83	C4
TR85	B3
TR86	C3
TR91	D1
TR92	D1
TR93	C1
TR94	C1
TR101	B3
TR106	B2
TR107	B2
TR108	B2
TR111	C2
TR303	B1
TR307	B4
TR308	B4
TR309	B1
TR501	E3
TR502	E2
TR503	E2
TR504	D2
TR505	E2
TR506	D,E2
TR507	E3
TR508	D,E3
TR509	D,E3
TR512	E1
TR513	E1
TR514	E1

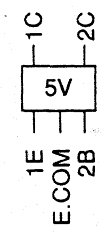
INTEGRATED BLOCKs

IB301	B1
IB302	C1
IB701	A1
IB702	A,B1
IB703	A1

SINGLE CHIP TRANSISTOR

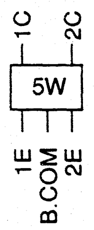


XP1401 (PNP x 2)


1C
2C
5V
1E
E.COM
2B

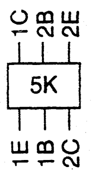
(TR14,16)

XP2501 (NPN x 2)


1C
2C
5W
1E
B.COM
2E

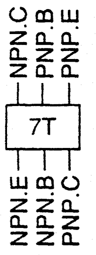
(TR38)

XP4401 (PNP x 2)


1C
2B
2E
5K
1E
1B
2C

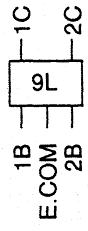
(TR83)

XP4312 (NPN WITH RESISTORs & PNP WITH RESISTORs)


NPN.C
PNP.B
PNP.E
7T
NPN.E
NPN.B
PNP.C

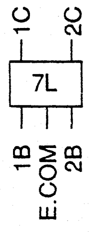
(TR303)

XP1213 (NPN WITH RESISTORs x 2)


1C
2C
9L
1B
E.COM
2B

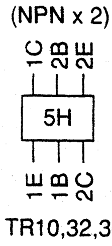
(TR6,7,8 TR11,107)

XP1113 (PNP WITH RESISTORs x 2)


1C
2C
7L
1B
E.COM
2B

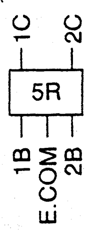
(TR1,37,75)

XP4501 (NPN x 2)

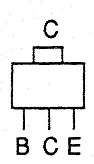

1C
2B
2E
5H
1E
1B
2C

(TR10,32,36 TR82,85)

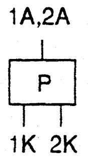
XP1501 (NPN x 2)


1C
2C
5R
1B
E.COM
2B

(TR62,94,101)

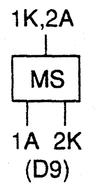


DAP202U



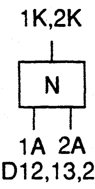
(D3,23)

MA147


1K,2A
MS
1A
2K

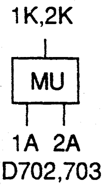
(D9)

DAN202U



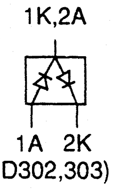
(D12,13,27)

MA132WK


1K,2K
MU
1A
2A

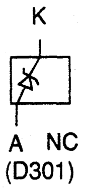
(D702,703)

DA221

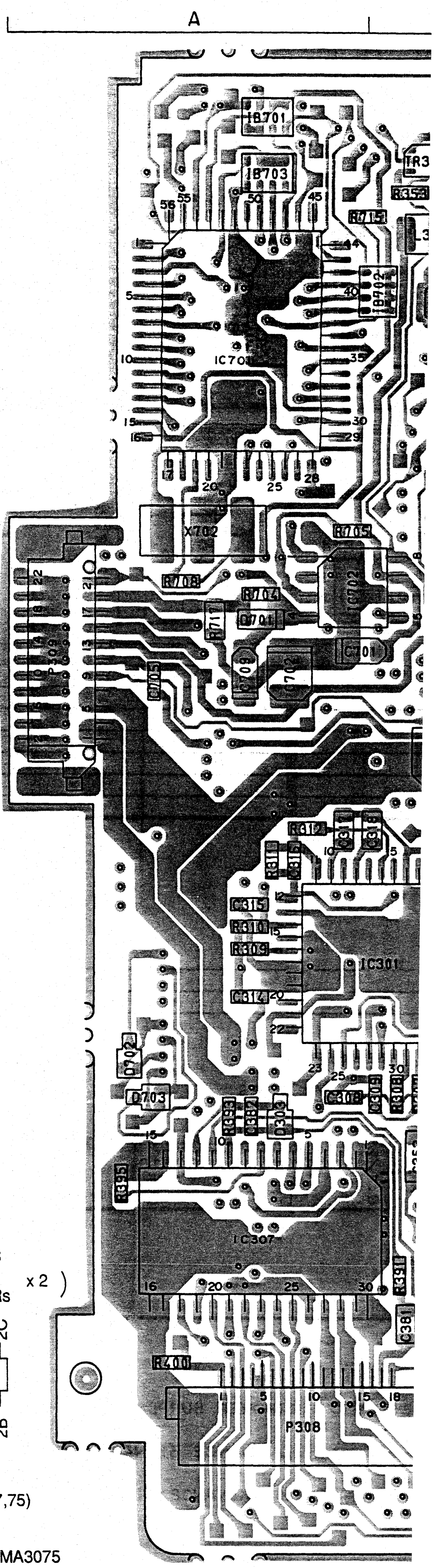


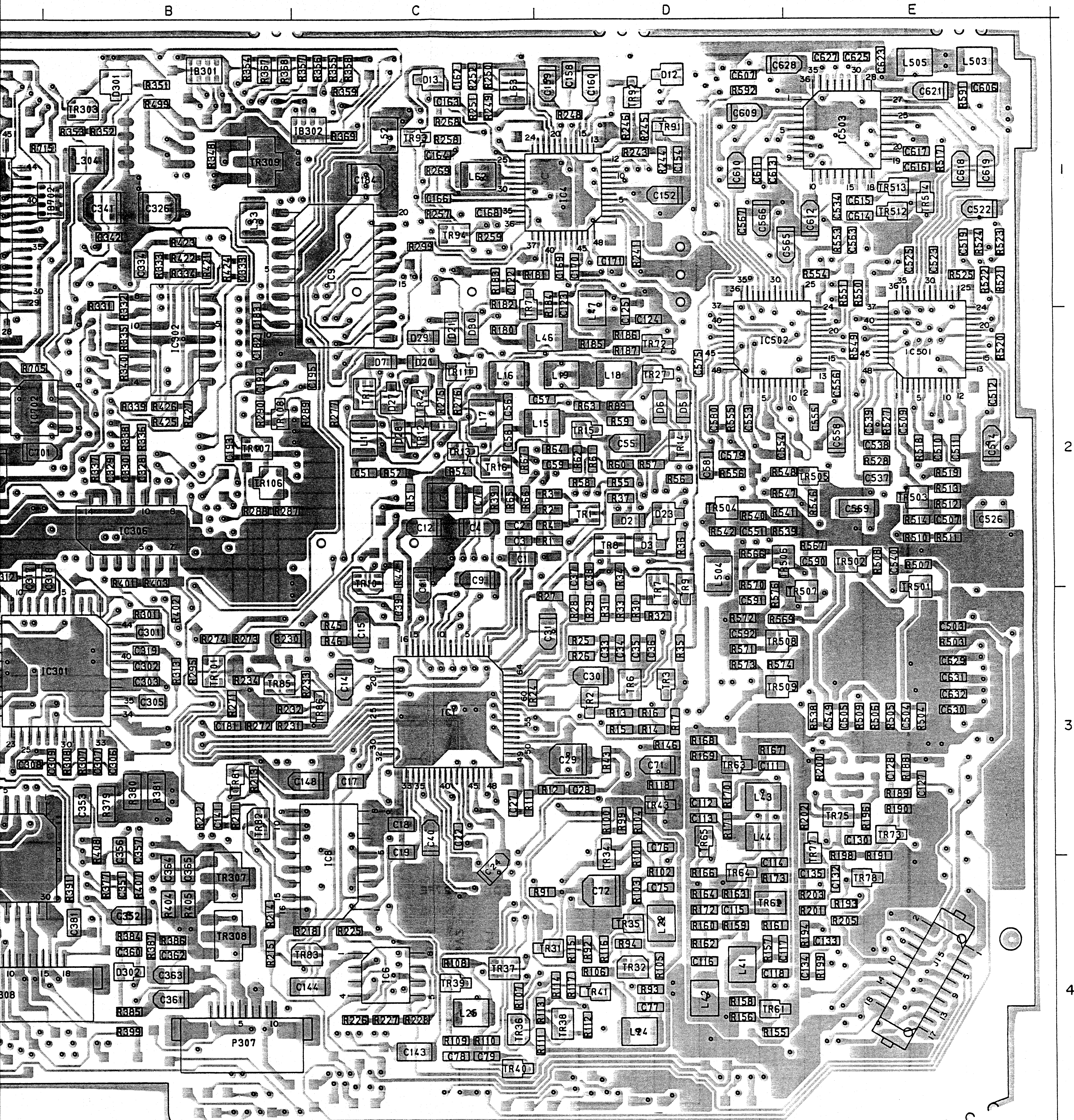
(D302,303)

MA3075

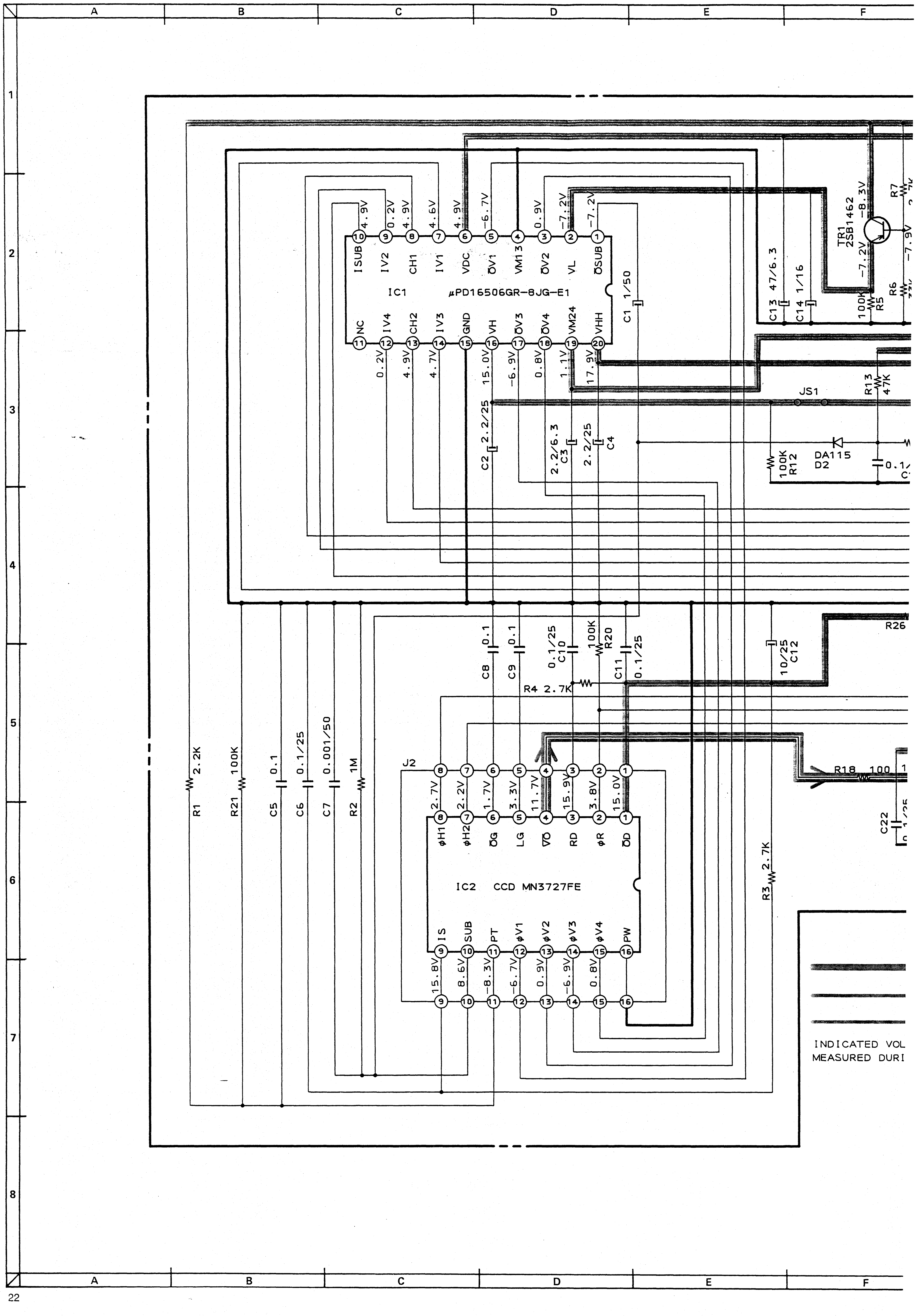


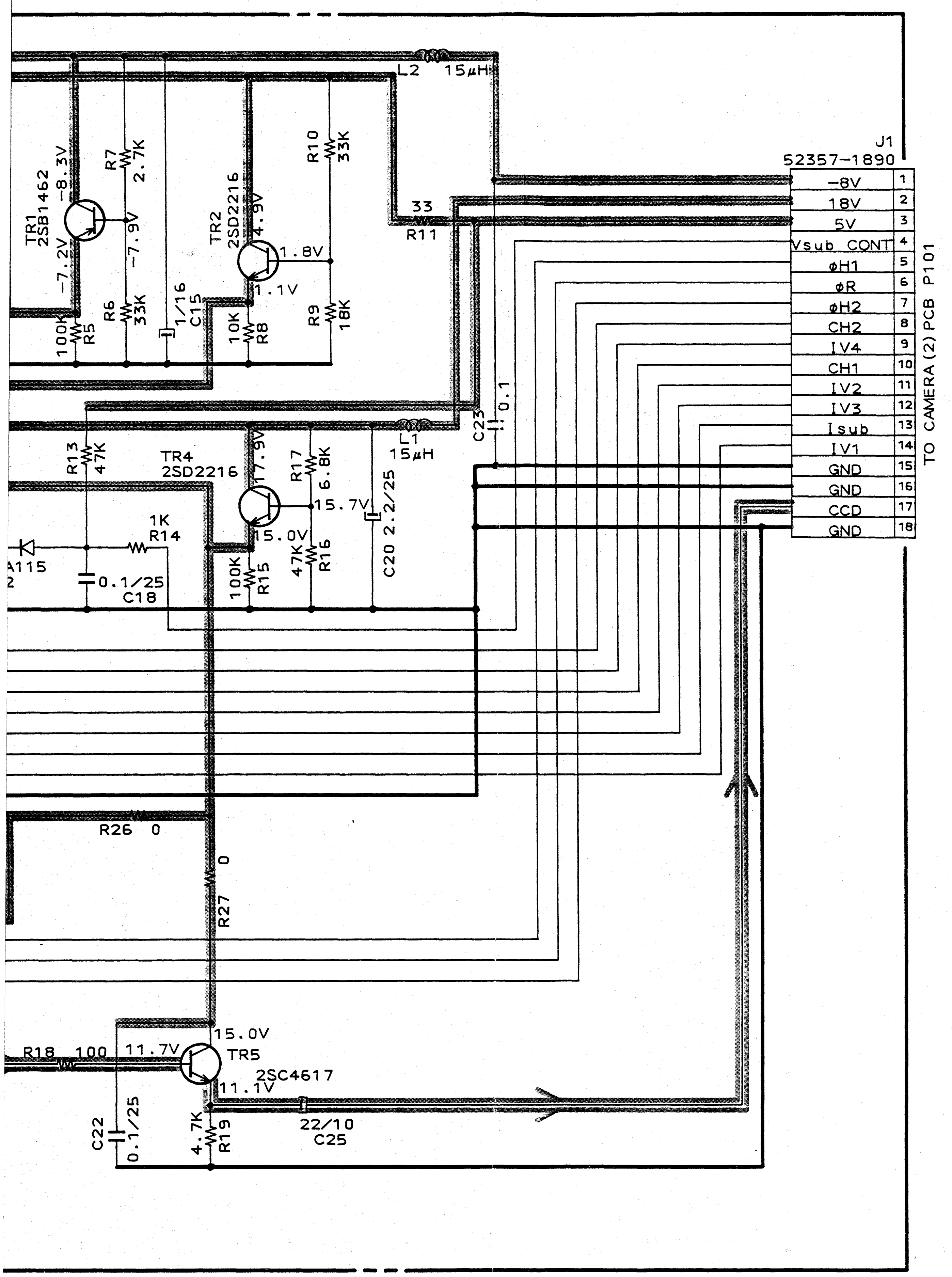
(D301)


A
IB701
IB703
IC701
X702
R708
R704
D701
R705
IC702
C701
P309
D705
R612
C315
R310
R309
IC301
C314
D702
D703
D303
C308
R395
IC307
R391
R400
P308
C381


B
C
D
E
1
2
3
4
IC301
IC302
IC306
IC501
IC502
IC503
IC4
IC6
IC8
IC702
IB301
IB302
TR309
TR307
TR308
P307
J115
L503
L505
L504
L46
L43
L44
L41
L52
L62
L304
C341
C326
C9

MAIN PCB V3014A501AJ1 (TOP)


IC1 μPD16506GR-8JG-E1
ISUB
IV2
CH1
IV1
VDC
ŌV1
VM13
ŌV2
VL
ŌSUB
NC
IV4
CH2
IV3
GND
VH
ŌV3
ŌV4
VM24
VHH
4.9V
0.2V
4.9V
4.6V
4.9V
-6.7V
0.9V
-7.2V
-7.2V
0.2V
4.9V
4.7V
15.0V
-6.9V
0.8V
1.1V
17.9V
C1 1/50
C2 2.2/25
C3 2.2/6.3
C4 2.2/25
C13 47/6.3
C14 1/16
TR1 2SB1462
-8.3V
-7.2V
-7.9V
R5 100K
R6
R7
R13 47K
JS1
R12 100K
DA115 D2
C8 0.1
C9 0.1
C10 0.1/25
R20 100K
C11 0.1/25
R4 2.7K
C12 10/25
R26
R18 100
C22
R1 2.2K
R21 100K
C5 0.1
C6 0.1/25
C7 0.001/50
R2 1M
R3 2.7K
J2
IC2 CCD MN3727FE
φH1
φH2
ŌG
LG
VŌ
RD
φR
ŌD
IS
SUB
PT
φV1
φV2
φV3
φV4
PW
2.7V
2.2V
1.7V
3.3V
11.7V
15.9V
3.8V
15.0V
15.8V
8.6V
-8.3V
-6.7V
0.9V
-6.9V
0.8V
INDICATED VOL
MEASURED DURI
A
B
C
D
E
F
1
2
3
4
5
6
7
8


F
G
H
I
J
K
1
2
3
4
5
6
7
8
L2 15μH
TR1 2SB1462
-8.3V
-7.2V
R7 2.7K
-7.9V
R6 33K
100K R5
1/16 C15
TR2 2SD2216
4.9V
1.8V
1.1V
10K R8
R10 33K
R9 18K
33 R11
J1 52357-1890
-8V
18V
5V
Vsub CONT
φH1
φR
φH2
CH2
IV4
CH1
IV2
IV3
Isub
IV1
GND
GND
CCD
GND
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
TO CAMERA (2) PCB P101
C23 0.1
L1 15μH
R13 47K
TR4 2SD2216
17.9V
R17 6.8K
15.7V
C20 2.2/25
15.0V
1K R14
A115
2
0.1/25 C18
100K R15
47K R16
R26 0
0 R27
15.0V
R18 100
11.7V
TR5 2SC4617
11.1V
22/10 C25
C22 0.1/25
4.7K R19

CCD PCB V3013A502C

B (POWER SUPPLY) LINE

LUMINANCE SIGNAL LINE

CHROMINANCE SIGNAL LINE

NDICATED VOLTAGES WERE
EASURED DURING REC MODE.

NOTE;
UNLESS OTHERWISE SPECIFIED
ALL RESISTORS IN OHMS
ALL CAPACITORS IN μF (P=PF)
ALL ELECTROLYTIC CAPACITORS IN μF/WV

PV-MS8
CCD
SCHEMATIC DIAGRAM
No.13-9 V301405M
A2

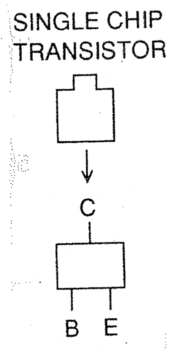
PRINCIPAL PARTS LOCATION

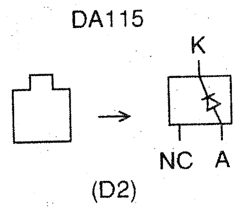
DIODE

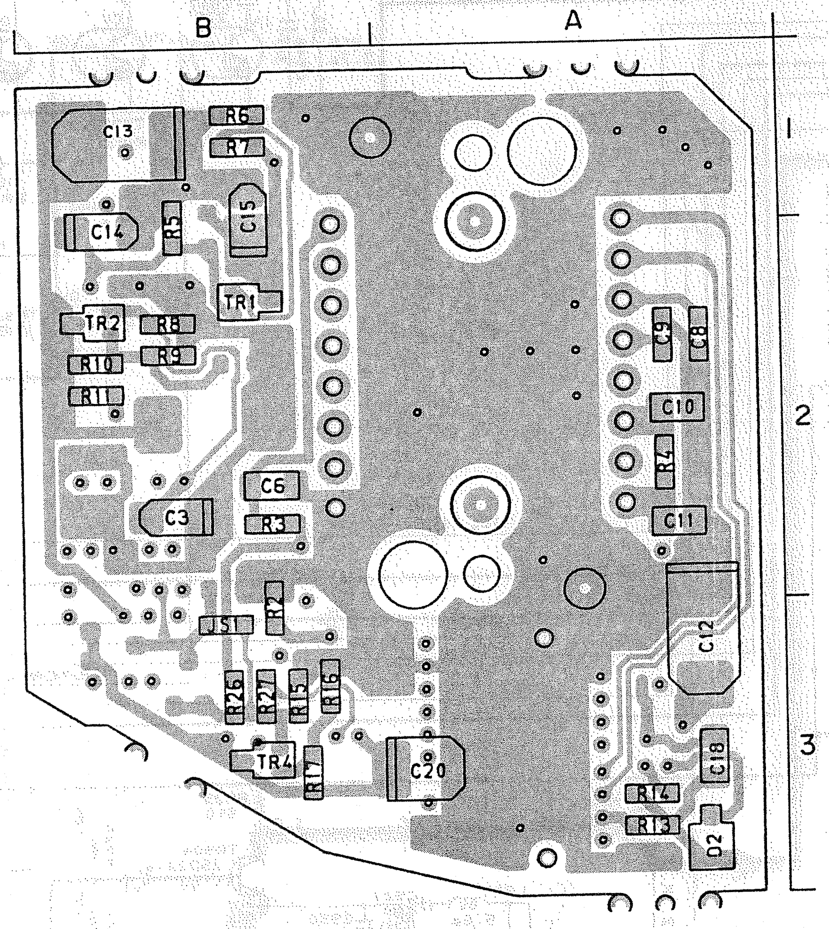
D2	A3

TRANSISTORs

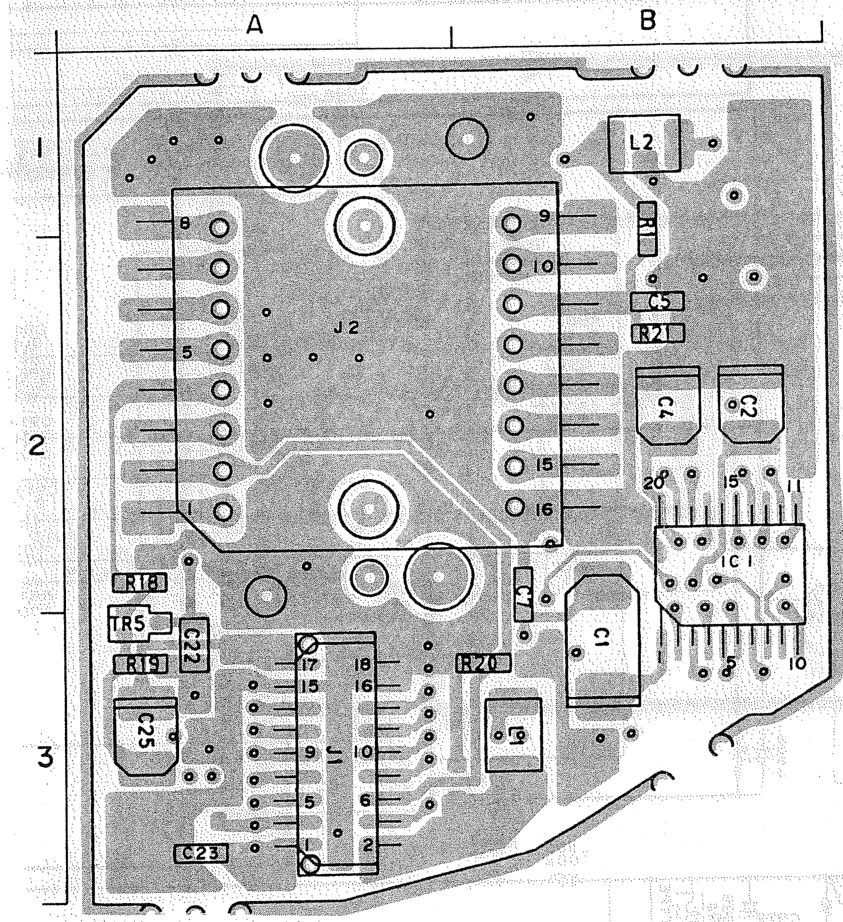
TR1	B2
TR2	B2
TR4	B3


SINGLE CHIP
TRANSISTOR
C
B
E


DA115
K
NC
A
(D2)


B
A
1
2
3
C13
R6
R7
C14
R5
C15
TR1
TR2
R8
R9
R10
R11
C9
C8
C10
R4
C6
C3
R3
C11
C12
JS1
R2
R26
R27
R15
R16
TR4
R17
C20
C18
R14
R13
D2

CCD PCB V3013A502CJ1(TOP)


A
B
1
2
3
L2
R1
J2
C5
R21
C4
C2
IC1
C7
C1
R18
TR5
C22
R19
R20
C25
J1
L1
C23

CCD PCB V3013A502CJ1(BOTTOM)

PRINCIPAL PARTS LOCATION

IC

IC1	B2,3

CONNECTORs

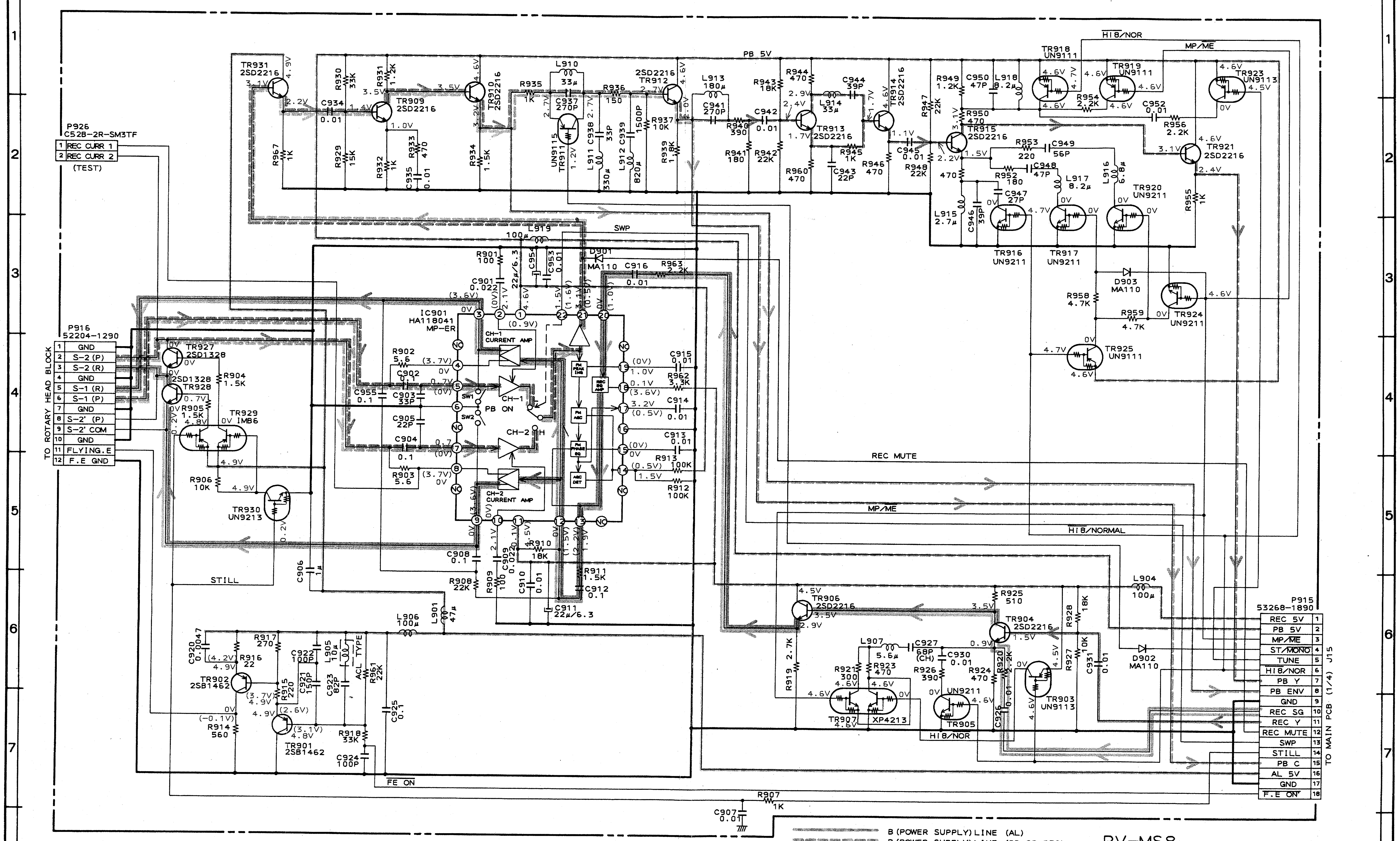
J1	A3
J2	A2

INDUCTORs

L1	B3
L2	B1

TRANSISTOR

TR5	A3


P926
C52B-2R-SM3TF
1 REC CURR 1
2 REC CURR 2
(TEST)
P916
52204-1290
1 GND
2 S-2 (P)
3 S-2 (R)
4 GND
5 S-1 (R)
6 S-1 (P)
7 GND
8 S-2' (P)
9 S-2' COM
10 GND
11 FLYING.E
12 F.E GND
TO ROTARY HEAD BLOCK
IC901
HA118041
MP-ER
CH-1 CURRENT AMP
CH-2 CURRENT AMP
CH-1
CH-2
PB ON
SW1
SW2
TR927 2SD1328
TR928 2SD1328
TR929 IMB6
TR930 UN9213
TR931 2SD2216
TR909 2SD2216
TR910 2SD2216
TR911 UN9115
TR912 2SD2216
TR913 2SD2216
TR914 2SD2216
TR915 2SD2216
TR916 UN9211
TR917 UN9211
TR918 UN9111
TR919 UN9111
TR920 UN9211
TR921 2SD2216
TR923 UN9113
TR924 UN9211
TR925 UN9111
TR901 2SB1462
TR902 2SB1462
TR903 UN9113
TR904 2SD2216
TR905 UN9211
TR906 2SD2216
TR907 XP4213
D901 MA110
D902 MA110
D903 MA110
PB 5V
HI8/NOR
MP/ME
SWP
STILL
REC MUTE
HI8/NORMAL
FE ON
ACL TYPE
P915
53268-1890
1 REC 5V
2 PB 5V
3 MP/ME
4 ST/MONO
5 TUNE
6 HI8/NOR
7 PB Y
8 PB ENV
9 GND
10 REC SG
11 REC Y
12 REC MUTE
13 SWP
14 STILL
15 PB C
16 AL 5V
17 GND
18 F.E ON
TO MAIN PCB (1/4) J15

PRE AMP PCB V3014A501B

NOTE:
UNLESS OTHERWISE SPECIFIED
ALL RESISTORS IN OHMS
ALL CAPACITORS IN μF (P=PF)
ALL ELECTROLYTIC CAPACITORS IN μF/WV
ALL INDUCTORS IN μH

INDICATED VOLTAGES WERE
MEASURED DURING PB MODE.
(TAPE SPEED:SP)
( ):REC MODE.

B (POWER SUPPLY) LINE (AL)
B (POWER SUPPLY) LINE (PB OR REC)
REC Y SIGNAL
PB Y SIGNAL
REC CHROMA SIGNAL LINE
PB CHROMA SIGNAL LINE
REC ATF/AFM SIGNAL LINE
PB ATF/AFM SIGNAL LINE

PV–MS8
PRE AMP
SCHEMATIC DIAGRAM

No.13–10 V301410M
A2

PRINCIPAL PARTS LOCATION

IC

IC901	C2

DIODEs

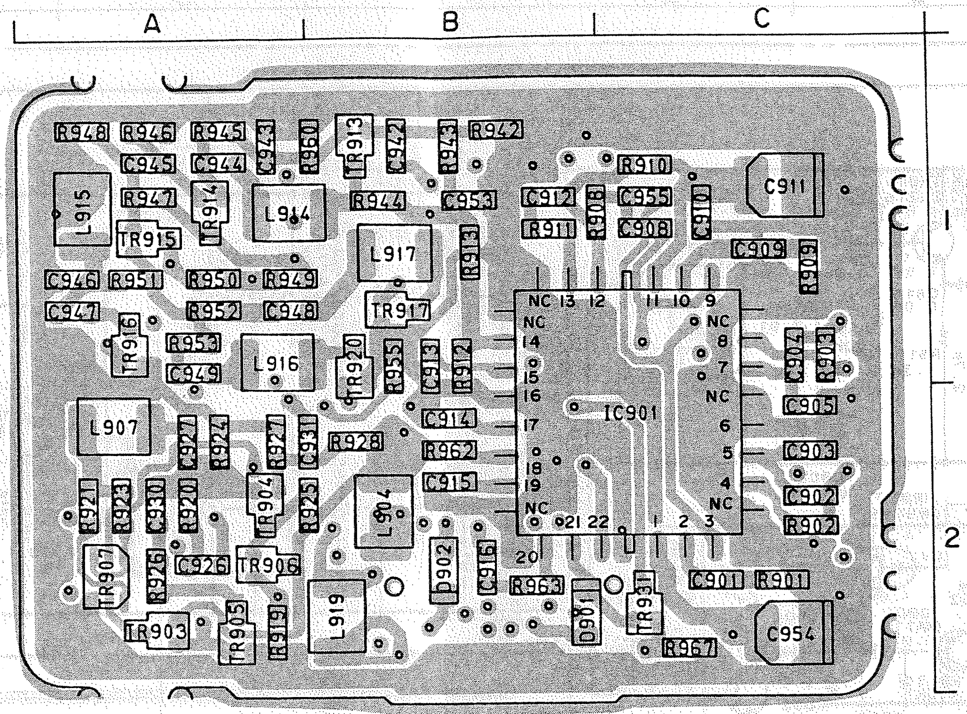
D901	B2
D902	B2

TRANSISTORs

TR903	A2
TR904	A2
TR905	A2
TR906	A2
TR907	A2
TR913	B1
TR914	A1
TR915	A1
TR916	A1
TR917	B1
TR920	B1
TR931	C2

INDUCTORs

L904	B2
L907	A2
L914	A1
L915	A1
L916	A1
L917	B1
L919	B2


A
B
C
1
2
R948
R946
R945
C943
R960
TR913
C942
R943
R942
C945
C944
L915
R947
TR914
L914
R944
C953
C912
R908
C955
C910
R910
C911
TR915
R911
C908
L917
R913
C909
R909
C946
R951
R950
R949
C947
R952
C948
TR917
TR916
R953
L916
TR920
R955
C913
R912
IC901
NC
C949
C904
R903
C905
L907
C927
R924
R927
C931
R928
C914
R962
C903
C915
C902
R902
R921
R923
C930
R920
TR904
R925
L904
D902
C916
R926
C926
TR906
TR907
R963
C901
R901
TR903
TR905
R919
L919
D901
TR931
R967
C954

PRE AMP PCB V3014A501BJ1 (TOP)

PRINCIPAL PARTS LOCATION

INDUCTORs

L901	B2
L905	C2
L906	B,C1
L910	A1,2
L911	A1
L912	A1
L913	B1
L918	A1

CONNECTORs

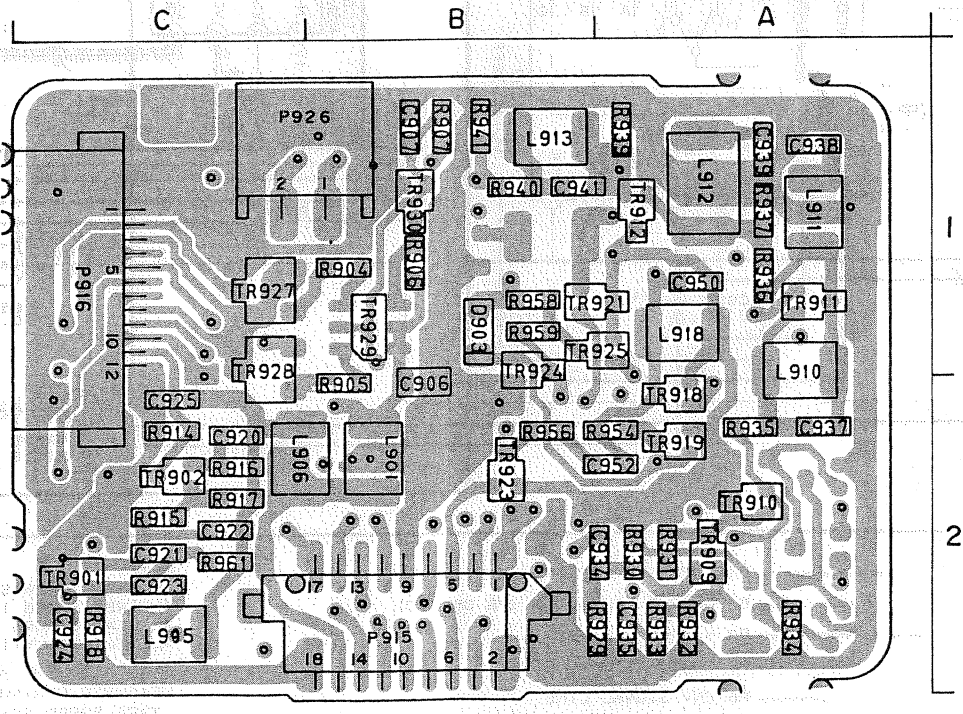
P915	B2
P916	C1
P926	B,C1

DIODE

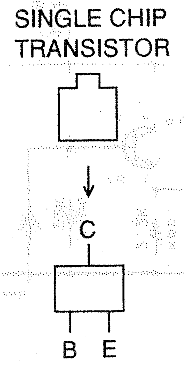
D903	B1

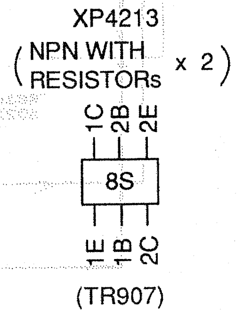
TRANSISTORs

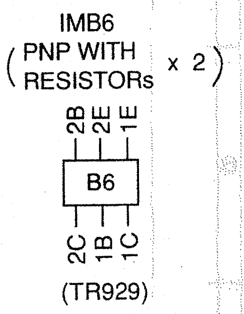
TR901	C2
TR902	C2
TR909	A2
TR910	A2
TR911	A1
TR912	A1
TR918	A2
TR919	A2
TR921	A,B1
TR923	B2
TR924	B1,2
TR925	A,B1
TR927	C1
TR928	C1
TR929	B1
TR930	B1

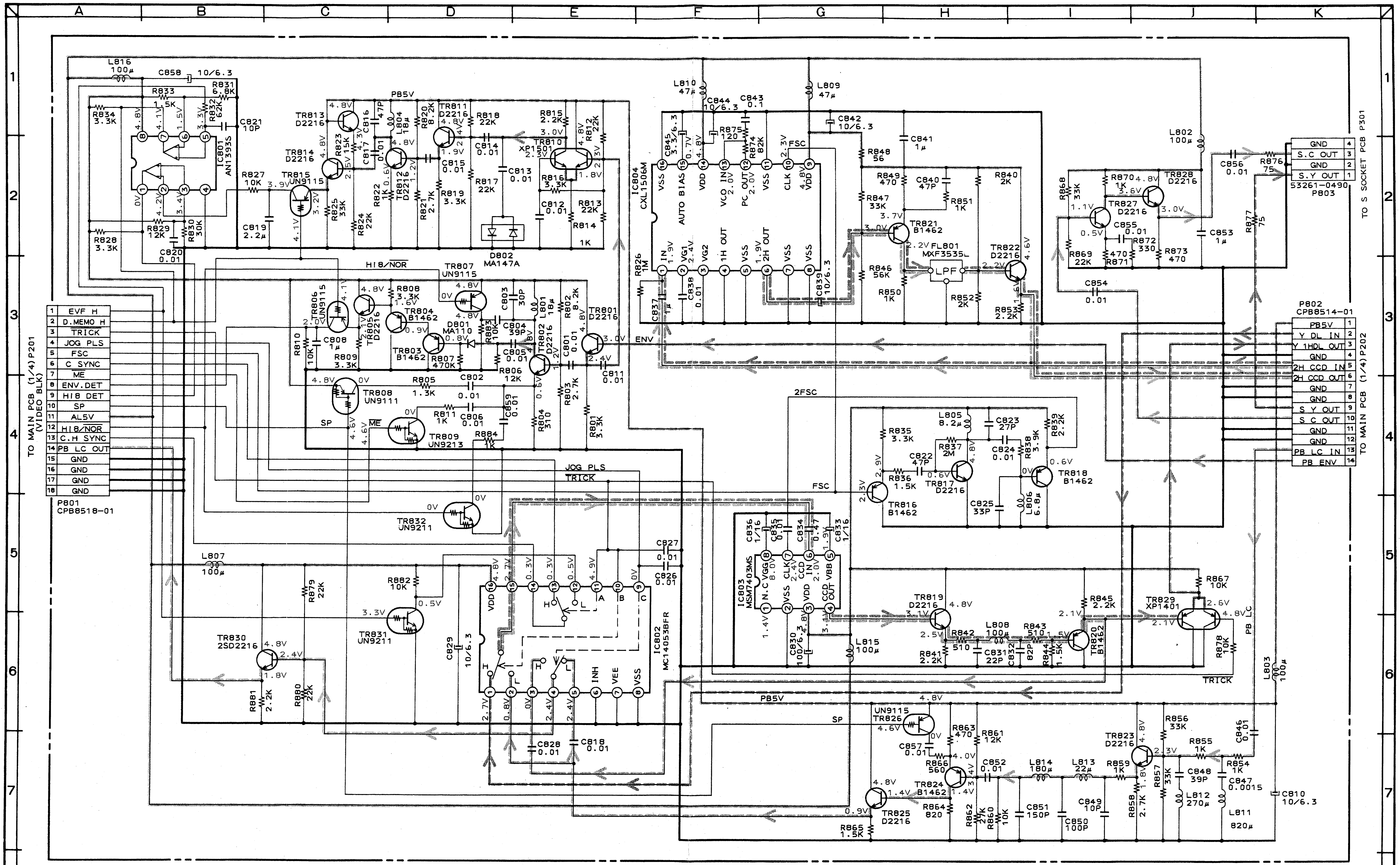

C
B
A
1
2
P926
C907
R941
R939
L913
R934
C938
L912
L911
R940
C941
TR930
R930
TR912
R933
P916
R904
TR927
TR929
D903
R958
TR921
C950
TR911
R959
TR925
L918
TR928
R905
C906
TR924
TR918
L910
C925
R914
C920
L906
L901
R956
R954
TR919
R935
C937
TR902
R916
C952
TR923
R917
R915
C922
TR910
C921
R961
TR901
C923
L905
P915

PRE AMP PCB V3014A501BJ1 (BOTTOM)


SINGLE CHIP
TRANSISTOR
C
B
E


XP4213
(NPN WITH RESISTORs x 2)
1C
2B
2E
8S
1E
1B
2C
(TR907)


IMB6
(PNP WITH RESISTORs x 2)
2B
2E
1E
B6
2C
1B
1C
(TR929)


A B C D E F G H I J K
1 2 3 4 5 6 7 8
IC801 AN1393S
IC802 MC14053BFR
IC803 MSM7403MS
IC804 CXL1506M
TR801 D2216
TR802 D2216
TR803 B1462
TR804 B1462
TR805 D2216
TR806 UN9115
TR807 UN9115
TR808 UN9111
TR809 UN9213
TR810 XP1501
TR811 D2216
TR812 D2216
TR813 D2216
TR814 D2216
TR815 UN9115
TR816 B1462
TR817 D2216
TR818 B1462
TR819 D2216
TR820 B1462
TR821 B1462
TR822 D2216
TR823 D2216
TR824 B1462
TR825 D2216
TR826 UN9115
TR827 D2216
TR828 D2216
TR829 XP1401
TR830 2SD2216
TR831 UN9211
TR832 UN9211
D801 MA110
D802 MA147A
FL801 MXF3535L
LPF
PB5V
HI8/NOR
ENV
2FSC
FSC
SP
ME
JOG PLS
TRICK
PB LC
P801 CPB8518-01
TO MAIN PCB (1/4) P201 (VIDEO BLK)
1 EVF H
2 D.MEMO H
3 TRICK
4 JOG PLS
5 FSC
6 C SYNC
7 ME
8 ENV.DET
9 HI8 DET
10 SP
11 AL5V
12 HI8/NOR
13 C.H SYNC
14 PB LC OUT
15 GND
16 GND
17 GND
18 GND
P802 CPB8514-01
TO MAIN PCB (1/4) P202
1 PB5V
2 Y DL IN
3 Y 1HDL OUT
4 GND
5 2H CCD IN
6 2H CCD OUT
7 GND
8 GND
9 S Y OUT
10 S C OUT
11 GND
12 GND
13 PB LC IN
14 PB ENV
P803 53261-0490
TO S SOCKET PCB P301
4 GND
3 S.C OUT
2 GND
1 S.Y OUT

Hi8 SUB PCB V3014A501D

B (POWER SUPPLY) LINE (AL, IDL)
B (POWER SUPPLY) LINE (PB OR REC)
PB Y SIGNAL LINE
PB CHROMA SIGNAL LINE
PB ENV SIGNAL LINE

NOTE:
UNLESS OTHERWISE SPECIFIED
ALL RESISTORS IN OHMS
ALL CAPACITORS IN μF (P=PF)
ALL ELECTROLYTIC CAPACITORS IN μF/WV

INDICATED VOLTAGES WERE
MEASURED DURING PB MODE.
(TAPE SPEED:SP)

PV–MS8
Hi8 SUB
SCHEMATIC DIAGRAM
No.13–11 V301411M
A2

PRINCIPAL PARTS LOCATION

ICs

IC801	A1
IC802	B2
IC803	C1
IC804	B,C3

CONNECTORs

P801	B1
P802	B2

TRANSISTORs

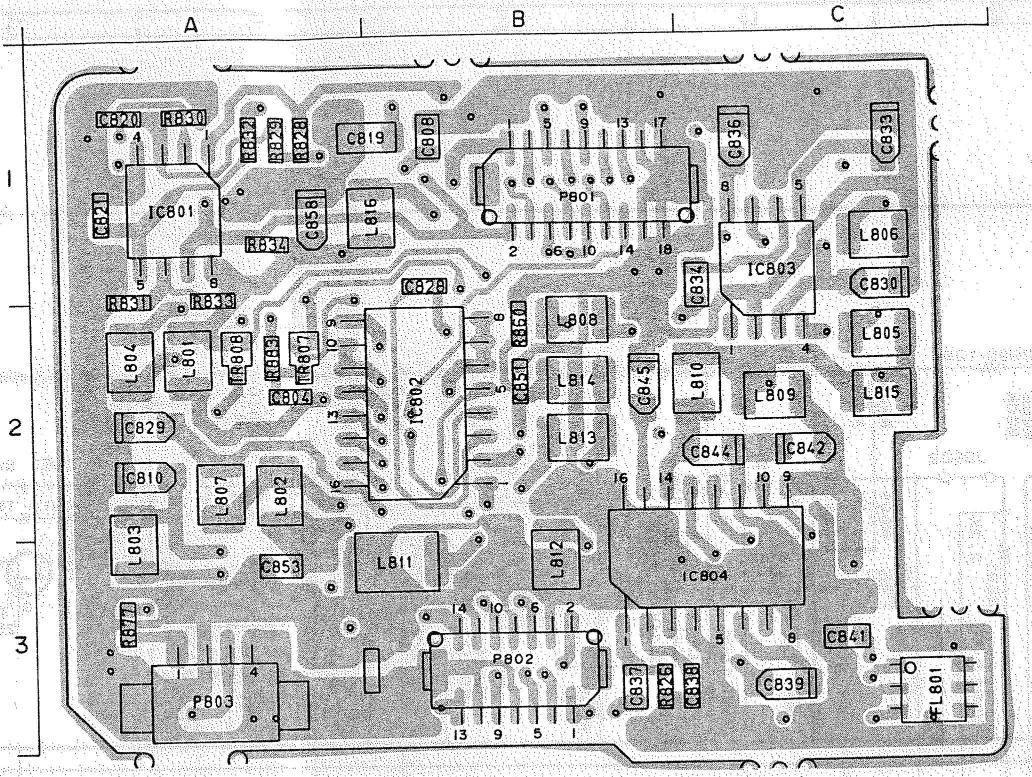
TR807	A2
TR808	A2

FILTER

FL801	C3

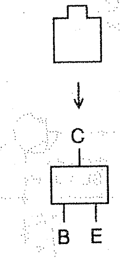
INDUCTORs

L801	A2
L802	A2
L803	A2,3
L804	A2
L805	C2
L806	C1
L807	A2
L808	B2
L809	C2
L810	C2
L811	B2
L812	B2
L813	B2
L814	B2
L815	C2
L816	A,B1

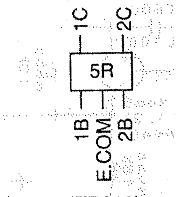

A
B
C
1
2
3
IC801
IC802
IC803
IC804
P801
P802
P803
FL801
L801
L802
L803
L804
L805
L806
L807
L808
L809
L810
L811
L812
L813
L814
L815
L816
TR807
TR808
C820
R830
R832
R829
R828
C819
C808
C836
C833
C821
R834
C858
C828
C834
C830
R831
R833
R808
R843
C804
C851
R860
C845
C829
C810
C853
C844
C842
R877
C841
C837
R826
C838
C839

Hi8 SUB PCB V3014A501DJ1 (TOP)

SINGLE CHIP TRANSISTOR

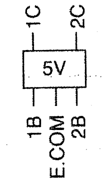


XP1501
(NPN x 2)


1C
2C
5R
1B
E.COM
2B

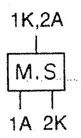
(TR810)

XP1401
(PNP x 2)


1C
2C
5V
1B
E.COM
2B

(TR829)

MA147


1K,2A
M.S
1A
2K

(D802)

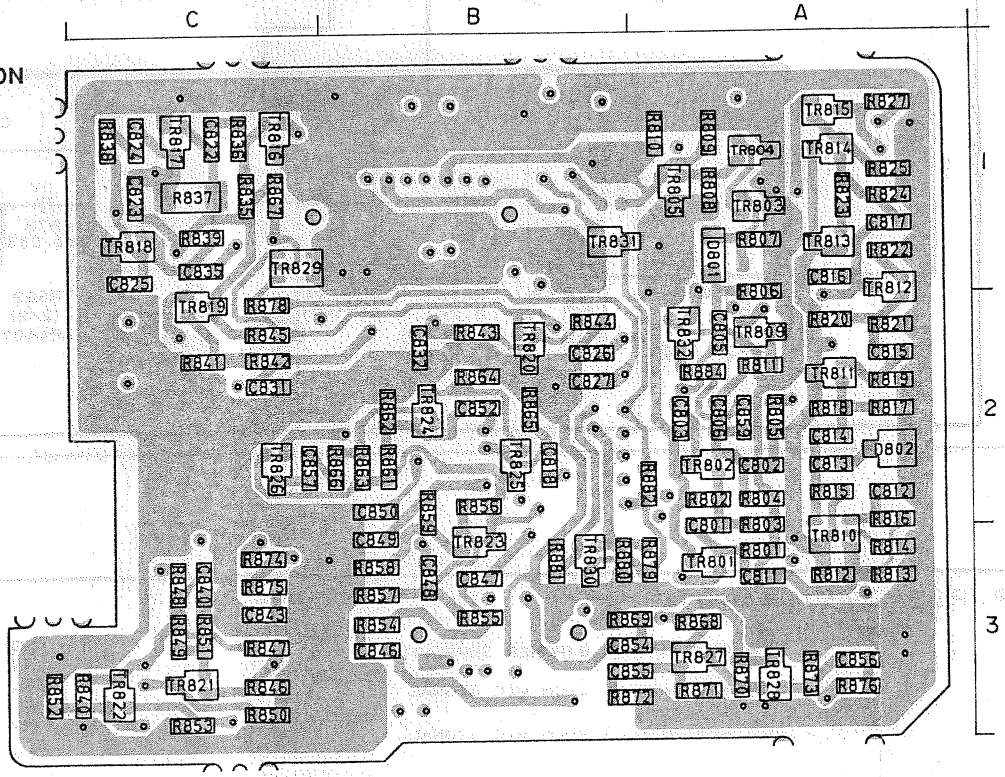
PRINCIPAL PARTS LOCATION

TRANSISTORs

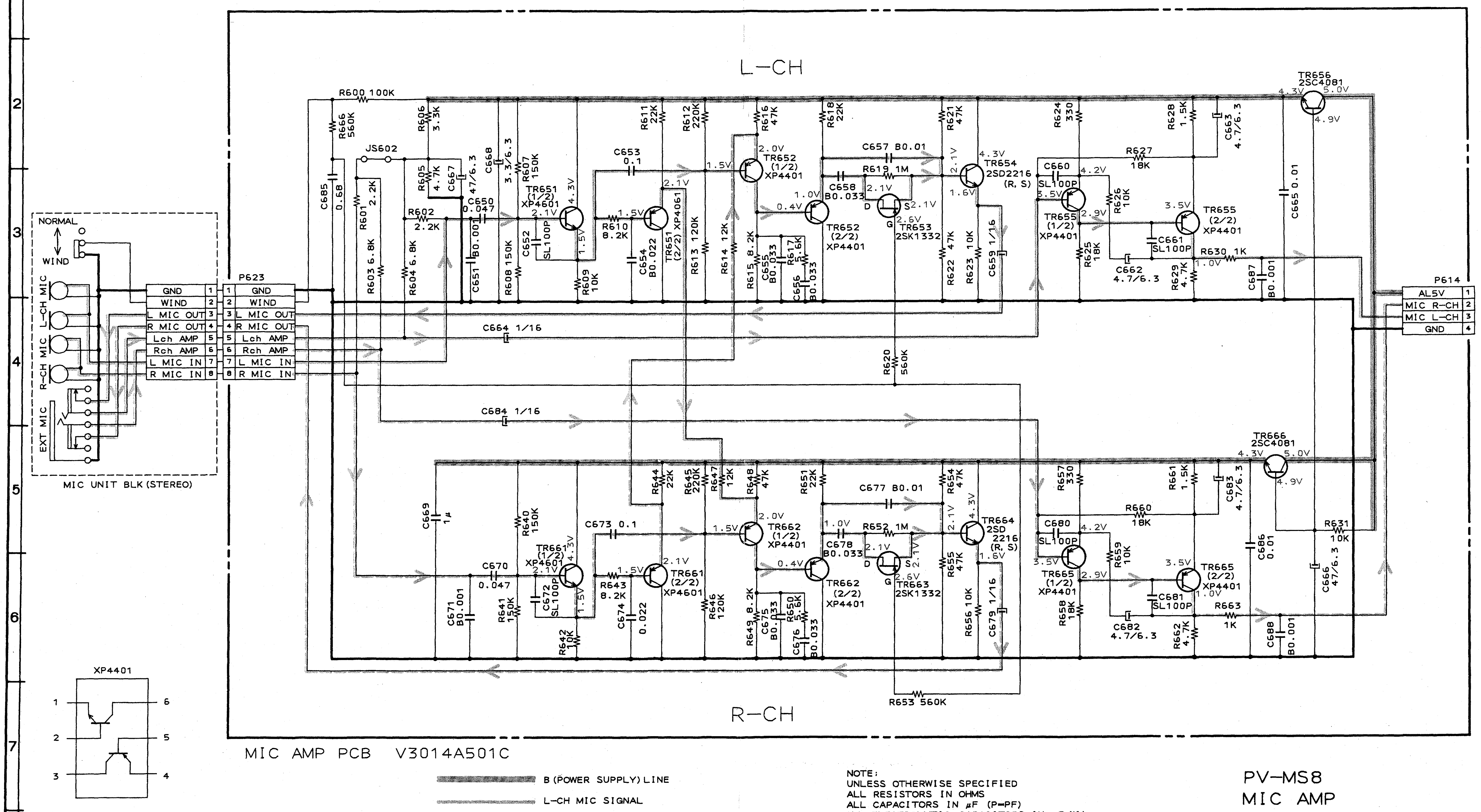
TR801	A3
TR802	A2
TR803	A1
TR804	A1
TR805	A1
TR809	A2
TR810	A3
TR811	A2
TR812	A1,2
TR813	A1
TR814	A1
TR815	A1
TR816	C1
TR817	C1
TR818	C1
TR819	C2
TR820	B2
TR821	C3
TR822	C3
TR823	B3
TR824	B2
TR825	B2
TR826	C2
TR827	A3
TR828	A3
TR829	C1
TR830	B3
TR831	B1
TR832	A2

DIODEs

D801	A1
D802	A2


C
B
A
1
2
3
TR801
TR802
TR803
TR804
TR805
TR809
TR810
TR811
TR812
TR813
TR814
TR815
TR816
TR817
TR818
TR819
TR820
TR821
TR822
TR823
TR824
TR825
TR826
TR827
TR828
TR829
TR830
TR831
TR832
D801
D802
R837
R839
C835
C825
R878
R845
R841
R842
C831
R843
R844
C826
C827
R864
C852
C850
C849
R858
R857
R854
C846
R856
C847
R855
R874
R875
C843
R847
R846
R850
R853
R852
R840
R869
R868
C854
C855
R872
R871
R870
R873
C856
R876
R827
R825
R824
C817
R822
R807
C816
R806
R820
R821
C815
R811
R819
R818
R817
C814
C813
R815
C812
R816
R814
R812
R813
R802
C802
R804
C801
R803
R801
C811
R884

Hi8 SUB PCB V3014A501DJ1 (BOTTOM)


L-CH
R-CH
MIC AMP PCB V3014A501C
MIC UNIT BLK (STEREO)
NORMAL
WIND
L-CH MIC
R-CH MIC
EXT MIC
P623
GND
WIND
L MIC OUT
R MIC OUT
Lch AMP
Rch AMP
L MIC IN
R MIC IN
P614
AL5V
MIC R-CH
MIC L-CH
GND
TO MAIN PCB (2/4) P501
JS602
R600 100K
R666 560K
C685 0.68
R601 2.2K
R603 6.8K
R602 2.2K
R604 6.8K
R605 4.7K
R606 3.3K
C667 47/6.3
C668 3.3/6.3
C650 0.047
C651 B0.001
R607 150K
R608 150K
C652 SL100P
TR651 (1/2) XP4601
TR651 (2/2) XP4061
R609 10K
R610 8.2K
C653 0.1
C654 B0.022
R611 22K
R612 220K
R613 120K
R614 12K
R615 8.2K
R616 47K
TR652 (1/2) XP4401
TR652 (2/2) XP4401
C655 B0.033
C656 B0.033
R617 5.6K
R618 22K
C657 B0.01
C658 B0.033
R619 1M
TR653 2SK1332
R620 560K
R621 47K
R622 47K
R623 10K
TR654 2SD2216 (R, S)
C659 1/16
R624 330
C660 SL100P
TR655 (1/2) XP4401
TR655 (2/2) XP4401
R625 18K
R626 10K
R627 18K
R628 1.5K
C661 SL100P
C662 4.7/6.3
C663 4.7/6.3
R629 4.7K
R630 1K
C665 0.01
C687 B0.001
TR656 2SC4081
C664 1/16
C684 1/16
C669 1μ
C670 0.047
C671 B0.001
R640 150K
R641 150K
C672 SL100P
TR661 (1/2) XP4601
TR661 (2/2) XP4601
R642 10K
R643 8.2K
C673 0.1
C674 0.022
R644 22K
R645 220K
R646 120K
R647 12K
R648 47K
R649 8.2K
C675 B0.033
C676 B0.033
R650 5.6K
TR662 (1/2) XP4401
TR662 (2/2) XP4401
R651 22K
C677 B0.01
C678 B0.033
R652 1M
TR663 2SK1332
R653 560K
R654 47K
R655 47K
R656 10K
TR664 2SD 2216 (R, S)
C679 1/16
R657 330
C680 SL100P
TR665 (1/2) XP4401
TR665 (2/2) XP4401
R658 18K
R659 10K
R660 18K
R661 1.5K
C681 SL100P
C682 4.7/6.3
C683 4.7/6.3
R662 4.7K
R663 1K
C686 0.01
C688 B0.001
C666 47/6.3
R631 10K
TR666 2SC4081
4.3V
5.0V
4.9V
2.1V
1.5V
2.0V
1.0V
0.4V
2.6V
1.6V
4.2V
3.5V
2.9V
XP4401
1
2
3
4
5
6

B (POWER SUPPLY) LINE

L-CH MIC SIGNAL

R-CH MIC SIGNAL

NOTE:
UNLESS OTHERWISE SPECIFIED
ALL RESISTORS IN OHMS
ALL CAPACITORS IN μF (P=PF)
ALL ELECTROLYTIC CAPACITORS IN μF/WV

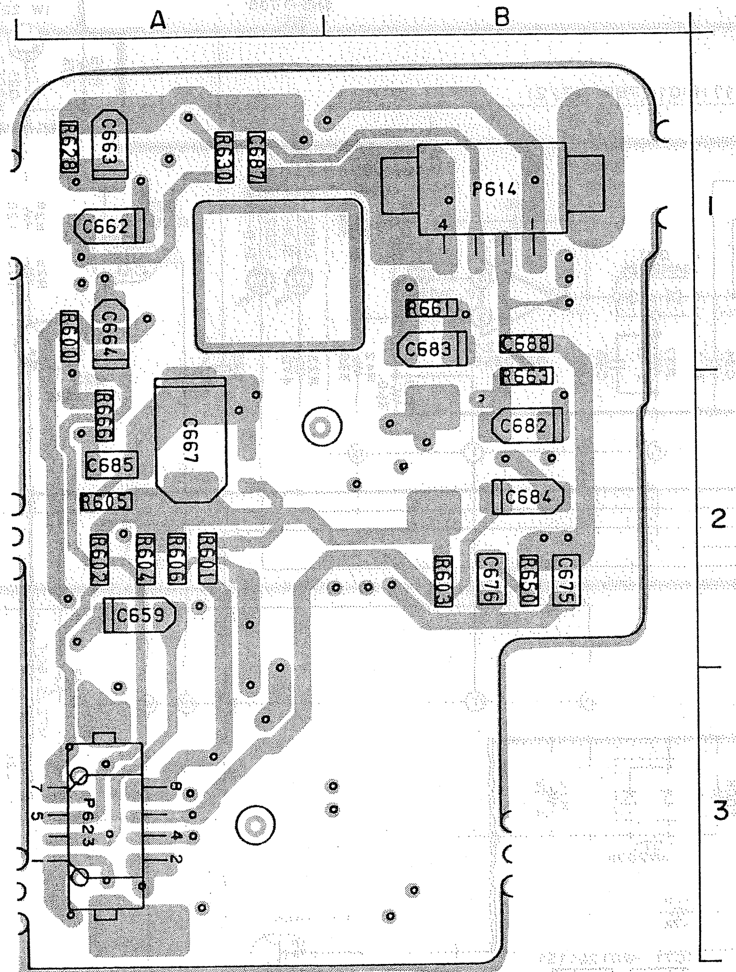
INDICATED VOLTAGES WERE MEASURED
DURING REC MODE.

PV-MS8
MIC AMP
SCHEMATIC DIAGRAM
No.13-12 V301412M
A2

PRINCIPAL PARTS LOCATION

CONNECTORs

P614	B1
P623	A3


A
B
1
2
3
R628
C663
R630
C687
P614
C662
R661
C683
C688
R663
C682
R600
C664
R666
C667
C685
C684
R605
R602
R604
R606
R601
R603
C676
R650
C675
C659
P623

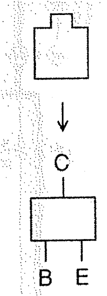
MIC AMP PCB V3014A501CJ1 (TOP)

PRINCIPAL PARTS LOCATION

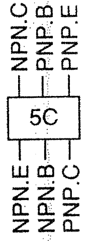
TRANSISTORs

TR651	A2
TR652	A2
TR653	A2
TR654	A2
TR655	A1
TR656	B1
TR661	A,B1
TR662	B2
TR663	B3
TR664	A,B3
TR665	B1
TR666	B1

SINGLE CHIP TRANSISTOR

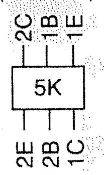


XP4601 (PNP & NPN)


NPN.C
PNP.B
PNP.E
5C
NPN.E
NPN.B
PNP.C

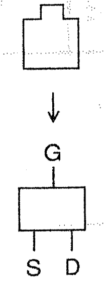
(TR651
TR661)

XP4401 (PNP x 2)

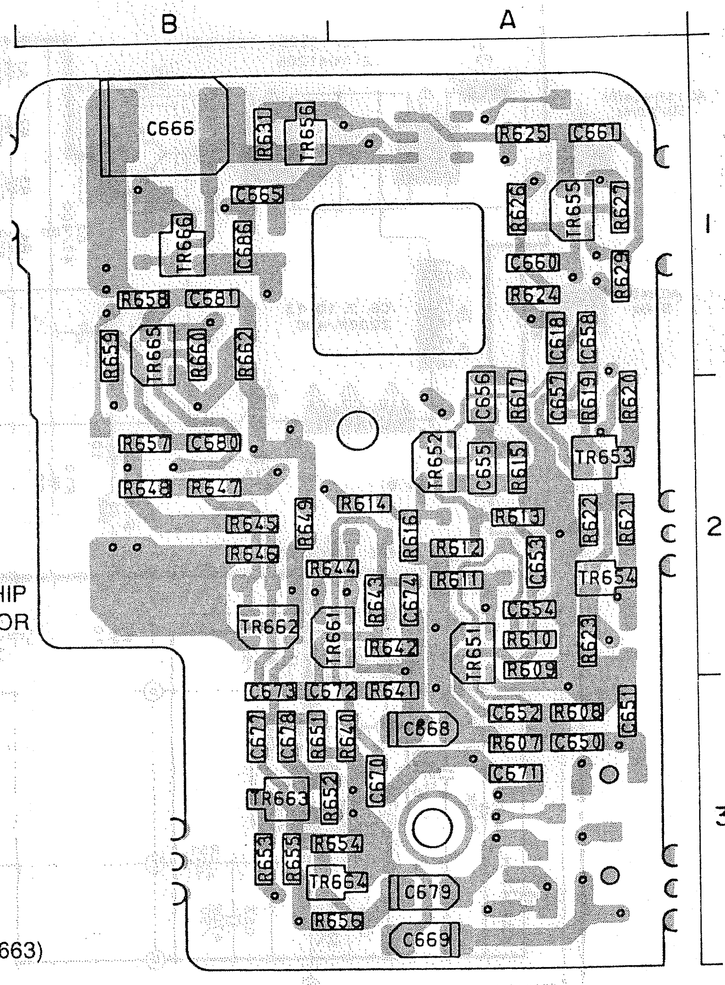

2C
1B
1E
5K
2E
2B
1C

(TR652,TR655
TR662,TR665)

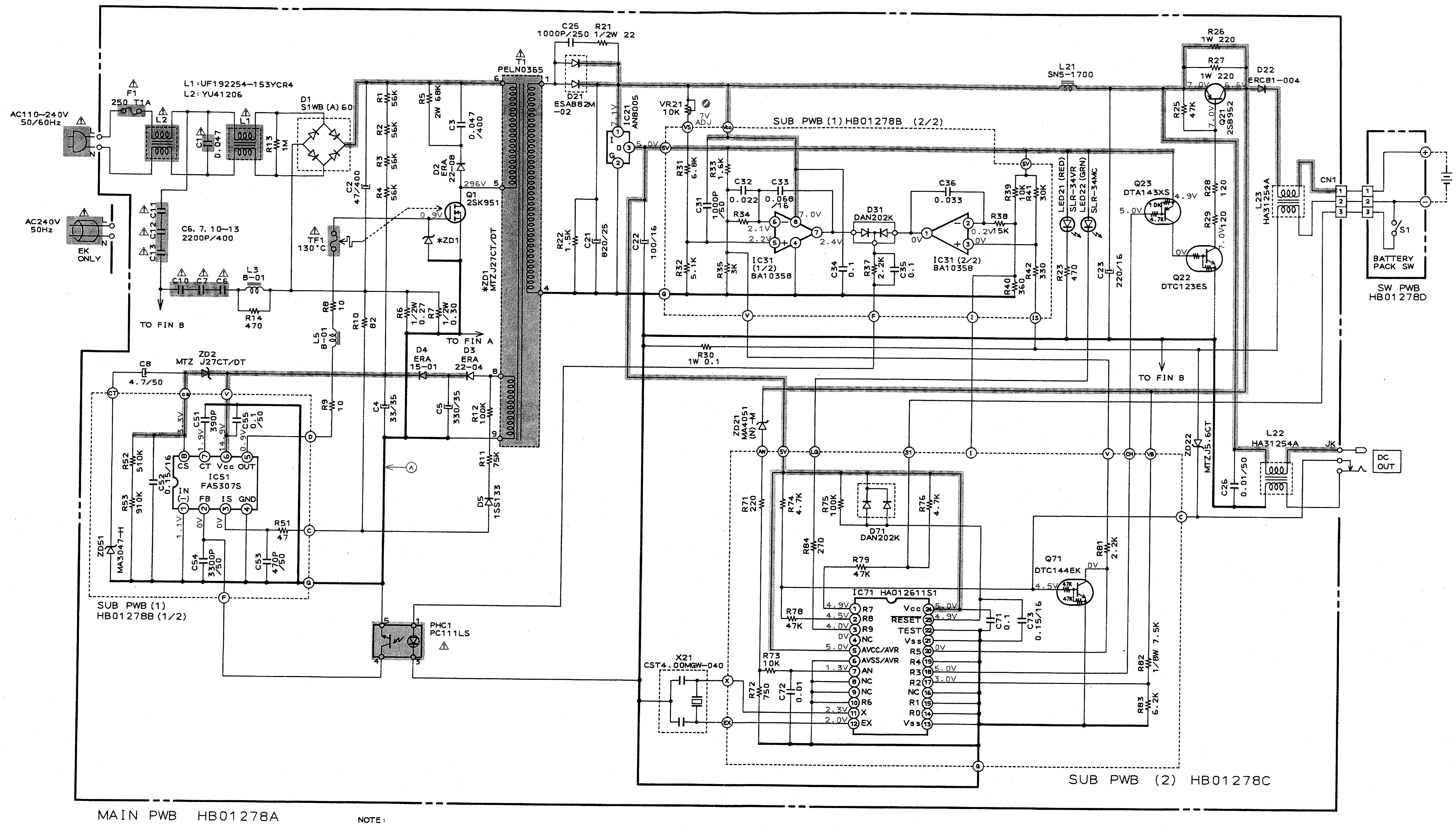
SINGLE CHIP TRANSISTOR



(TR653,TR663)


B
A
1
2
3
C666
R631
TR656
R625
C661
C665
R626
TR655
R627
TR666
C686
C660
R629
R658
C681
R624
R659
TR665
R660
R662
C618
C658
C656
R617
C657
R619
R620
R657
C680
TR652
C655
R615
TR653
R648
R647
R614
R649
R616
R613
R622
R621
R645
R646
R612
C653
TR654
R644
R643
C674
R611
C654
TR662
TR661
R642
TR651
R610
R609
R623
C673
C672
R641
C668
C652
R608
C651
C677
C678
R651
R640
R607
C650
C671
TR663
R652
C670
R653
R655
R654
TR664
C679
R656
C669

MIC AMP PCB V3014A501CJ1 (BOTTOM)


AC110~240V 50/60Hz
AC240V 50Hz
EK ONLY
F1 250 T1A
L1:UF192254-153YCR4
L2:YU41206
L2
C1 0.047
L1
R13 1M
D1 S1WB (A) 60
R1 56K
R2 56K
R3 56K
R4 56K
R5 2W 68K
C3 0.047 /400
C2 47/400
D2 ERA 22-08
Q1 2SK951
296V
0.9V
*ZD1
TF1 130°C
C6, 7, 10~13 2200P/400
C11
C12
C13
C10 C7 C6
L3 B-01
R14 470
TO FIN B
R8 10
R10 82
R6 1/2W 0.27
R7 1/2W 0.30
L5 B-01
TO FIN A
T1 PELN0365
*ZD1 MTZJ27CT/DT
C25 1000P/250
R21 1/2W 22
D21 ESAB82M -02
R22 1.5K
C21 820/25
C22 100/16
IC21 AN8005
7.1V
5.0V
VR21 10K
7V ADJ
SUB PWB (1) HB01278B (2/2)
R31 6.8K
R33 1.6K
C31 1000P /50
C32 0.022
C33 0.068 /16
R34
2.1V
2.2V
7.0V
2.4V
IC31 (1/2) BA10358
R32 5.1K
R35 3K
C34 0.1
R37 2.2K
C35 0.1
D31 DAN202K
C36 0.033
0V
0.2V
R38 15K
IC31 (2/2) BA10358
R39 10K
R41 30K
R42 330
R40 360
L21 SN5-1700
LED21 (RED) SLR-34VR
LED22 (GRN) SLR-34MC
R23 470
C23 220/16
R26 1W 220
R27 1W 220
R25 47K
Q21 2SB952
D22 ERC81-004
7.0V
6.6V
Q23 DTA143XS
4.9V
5.0V
R28 120
R29 120
Q22 DTC123ES
L23 HA31254A
CN1
S1
BATTERY PACK SW
SW PWB HB01278D
R30 1W 0.1
TO FIN B
C8 4.7/50
ZD2 MTZ J27CT/DT
D4 ERA 15-01
D3 ERA 22-04
C4 33/35
C5 330/35
R12 100K
R11 75K
D5 1SS133
R9 10
IC51 FA5307S
CS CT Vcc OUT
IN FB IS GND
C51 390P
C55 0.1 /50
C52 0.15/16
R52 510K
R53 910K
ZD51 MA3047-H
C54 3300P /50
C53 470P /50
R51 47
SUB PWB (1) HB01278B (1/2)
PHC1 PC111LS
ZD21 MA4051 (N)-M
ZD22 MTZJ5.6CT
L22 HA31254A
JK
DC OUT
C26 0.01/50
R71 220
R74 4.7K
R75 100K
D71 DAN202K
R76 4.7K
R84 270
R79 47K
R81 2.2K
Q71 DTC144EK
IC71 HA012611S1
R78 47K
R73 10K
R72 750
C72 0.01
C71 0.1
C73 0.15/16
R82 1/8W 7.5K
R83 6.2K
X21 CST4.00MGW-040
R7 R8 R9 NC AVCC/AVR AVSS/AVR AN NC NC R6 X EX
Vcc RESET TEST Vss R5 R4 R3 R2 NC R1 R0 Vss
SUB PWB (2) HB01278C
MAIN PWB HB01278A

NOTE:
UNLESS OTHERWISE SPECIFIED
ALL RESISTORS IN OHMS 1/4W
ALL CHIP RESISTORS IN OHMS 1/10W
ALL CAPACITORS IN µF 25WV

INDICATED VOLTAGES WERE MEASURED WITH NO LOAD
INPUT: AC 220V

(CONNECTED DC VOLTMETER'S NEGATIVE INPUT TO THE Ⓐ POINT WHEN MEASURED PRIMARY SECTION.)

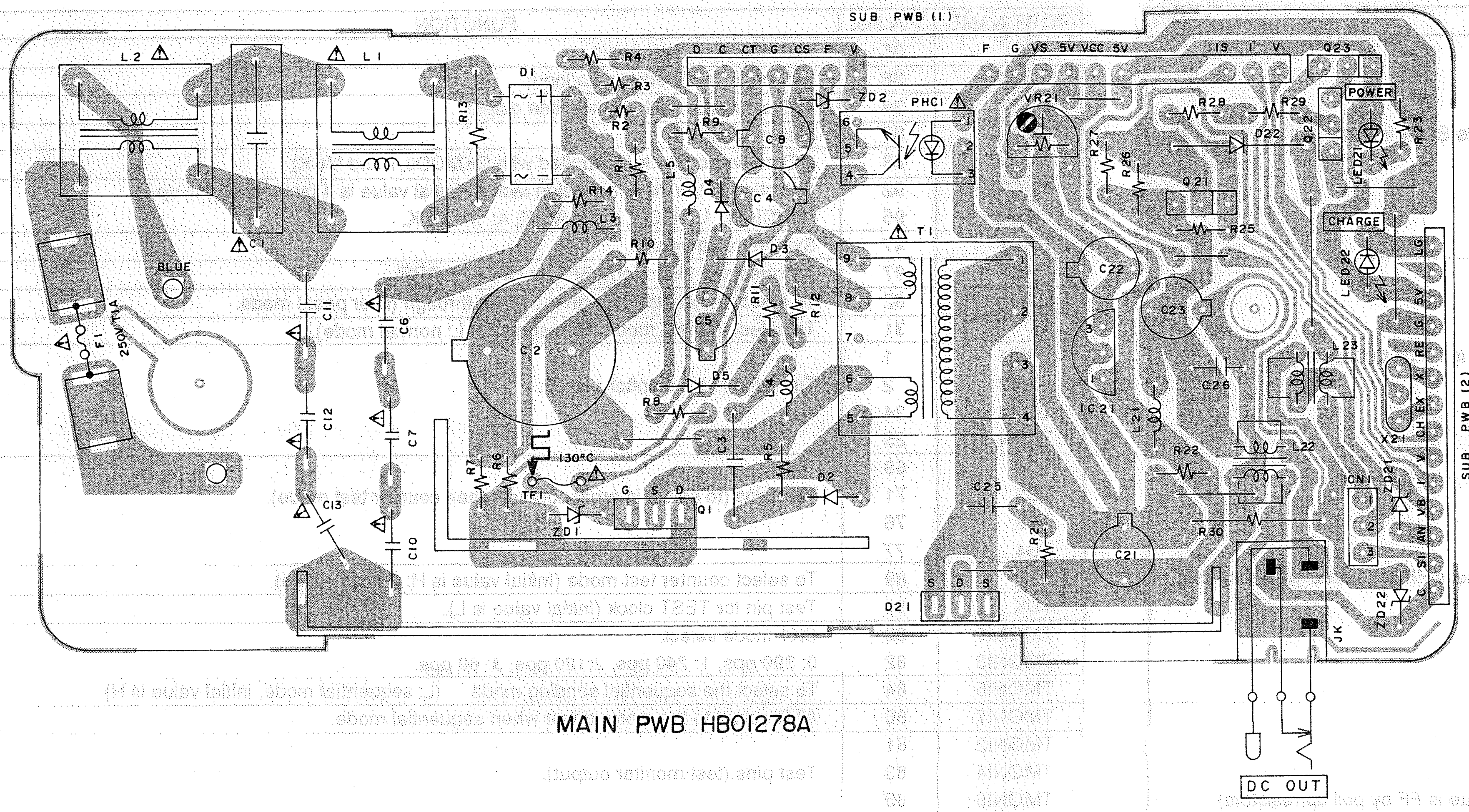
▨ B (POWER SUPPLY) LINE

WARNING: ⚠ AND ▨ INDICATE SAFETY CRITICAL COMPONENTS FOR CONTINUED SAFETY, REPLACE SAFETY CRITICAL COMPONENTS ONLY WITH MANUFACTURER'S RECOMMENDED PARTS

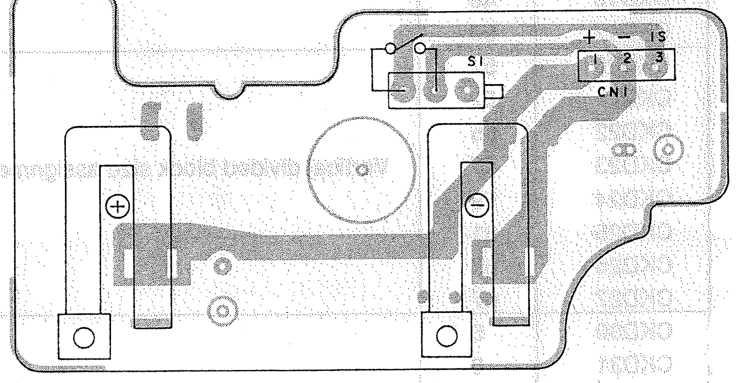
AVERTISSMENT: ⚠ ET ▨, ILS INDIQUENT LES COMPOSTANTS CRITIQUES DE SÉCURITÉ. POUR MAINTENIR LE DEGRÉ DE SÉCURITÉ DE L'APPAREIL, NE REMPLACER QUE DES PIÈCES RECOMMANDEES PAR LE FABRICANT

VA-300EA/EK/EG
AC ADAPTER
SCHEMATIC DIAGRAM

No.13-13 V301315M
A2


SUB PWB (1)
D C CT G CS F V
F G VS 5V VCC 5V
IS I V
Q23
L2 ⚠
⚠ L1
D1
R4
R3
R2
R1
R13
R9
C8
C4
ZD2
PHC1 ⚠
VR21
R28
R29
POWER
LED21
R23
D22
Q22
R27
R26
Q21
R25
CHARGE
LED22
⚠C1
BLUE
F1
250V T1A
R14
L3
L5
D4
R10
D3
⚠ T1
C22
C23
C11
C6
C12
C7
C13
C10
C2
C5
R11
R12
D5
R8
L4
C3
R5
D2
R7
R6
TF1
130°C
ZD1
G S D
Q1
C26
L23
IC21
L21
R22
L22
X21
CN1
ZD21
C25
R21
C21
R30
D21
S D S
ZD22
JK
LG 5V G RE X EX CH V I VB AN SI C
SUB PWB (2)
DC OUT

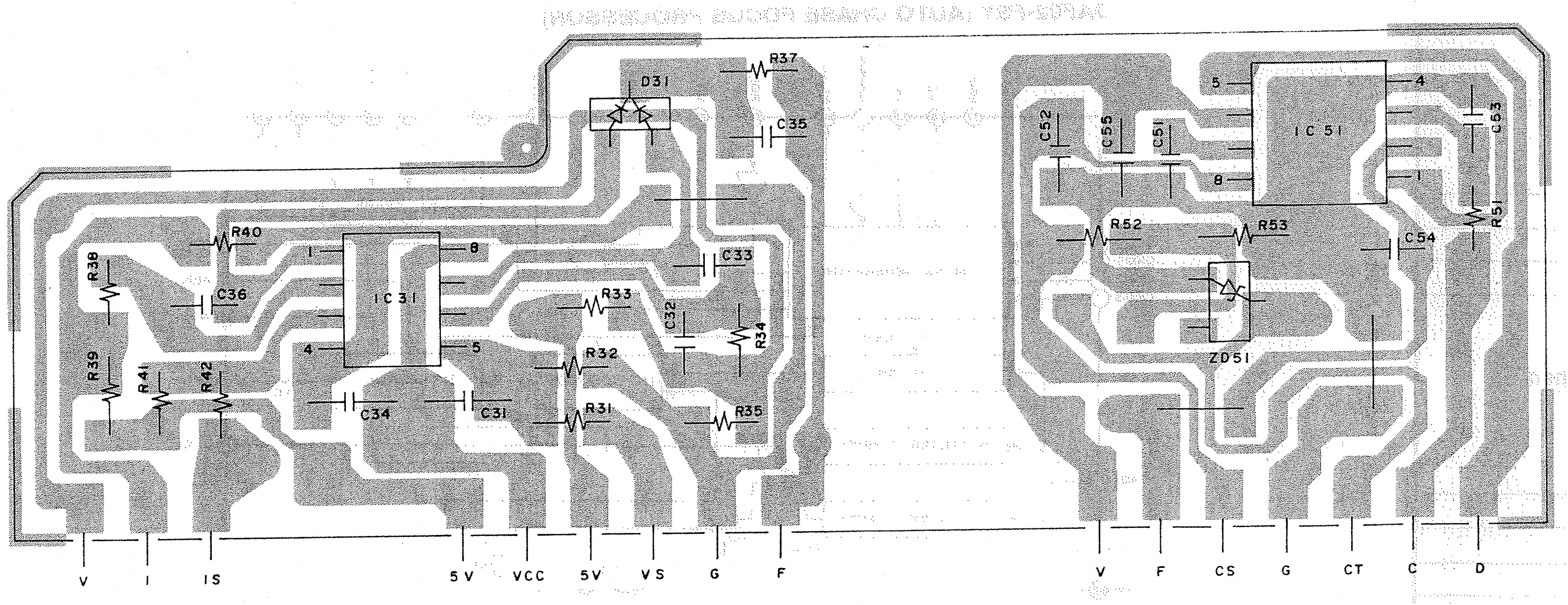
MAIN PWB HB01278A


+ − IS
1 2 3
S1
CN1

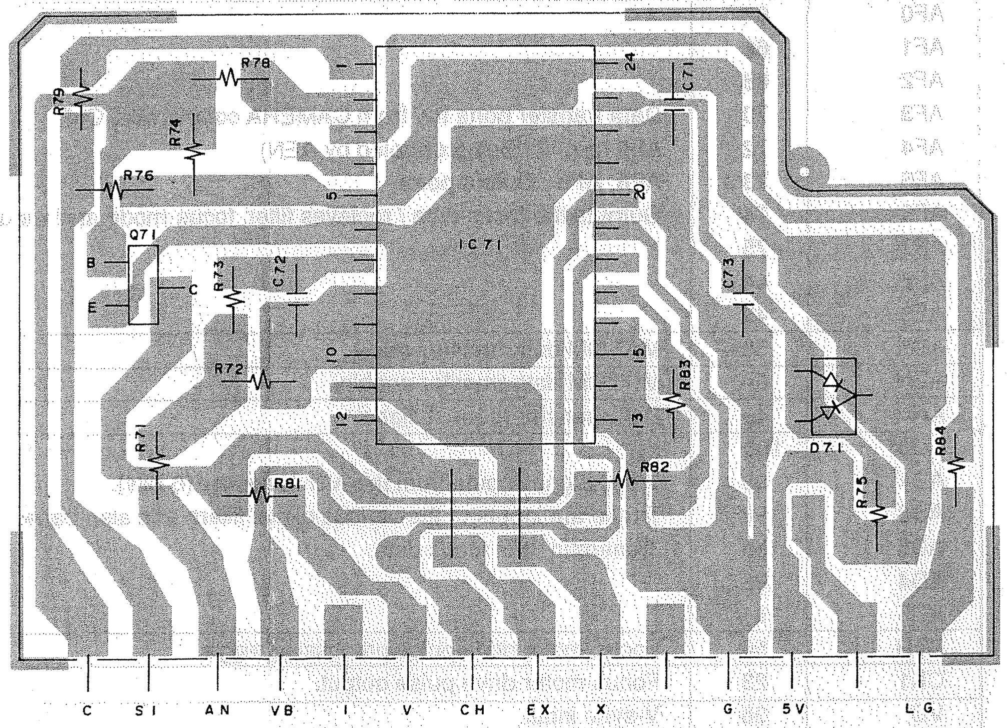
SW PWB HB01278D

WARNING: ⚠INDICATES SAFETY CRITICAL COMPONENTS FOR CONTINUED SAFETY,
REPLACE SAFETY CRITICAL COMPONENTS ONLY WITH MANUFACTURER'S
RECOMMENDED PARTS

AVERTISSEMENT: ⚠IL INDIQUE LES COMPOSANTS CRITIQUES DE SÉCURITÉ.
POUR MAINTENIR LE DEGRÉ DE SÉCURITÉ DE L'APPAREIL,
NE REMPLACER QUE DES PIÈCES RECOMMANDÉES PAR LE FABRICANT


R37
D31
C35
R40
R38
C36
IC31
C33
R33
C32
R34
R32
R39
R41
R42
C34
C31
R31
R35
V I IS
5V VCC 5V VS G F
C52
C55
C51
IC51
C53
R52
R53
R51
C54
ZD51
V F CS G CT C D

SUB PWB (1) HB01278B


R79
R78
C71
R74
R76
IC71
Q71
B
E
C
R73
C72
C73
R72
R83
D71
R71
R81
R82
R84
R75
C SI AN VB I V CH EX X G 5V LG

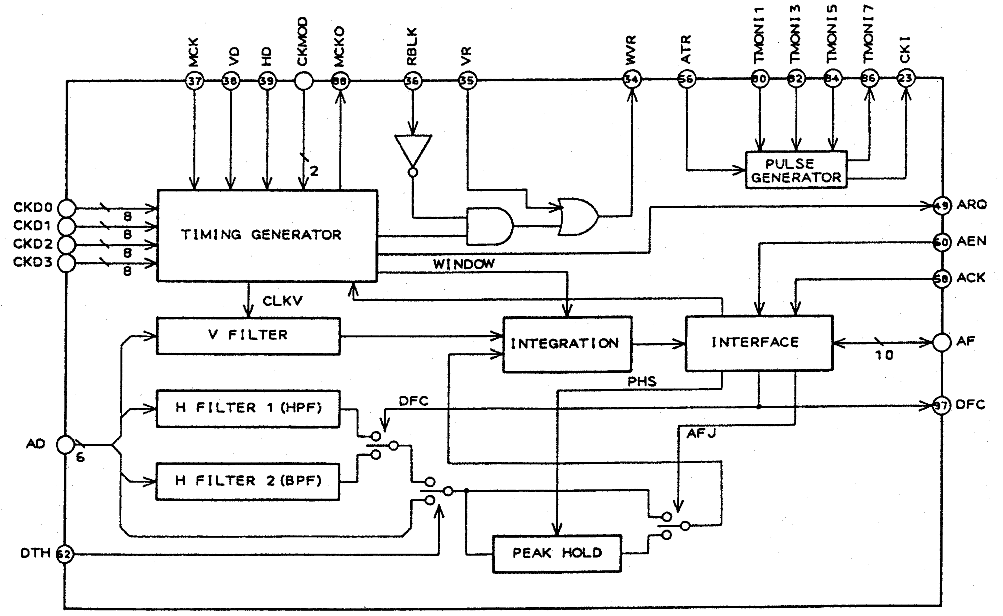
SUB PWB (2) HB01278C

DAF02-FSY (AUTO CHASE FOCUS PROCESSOR)

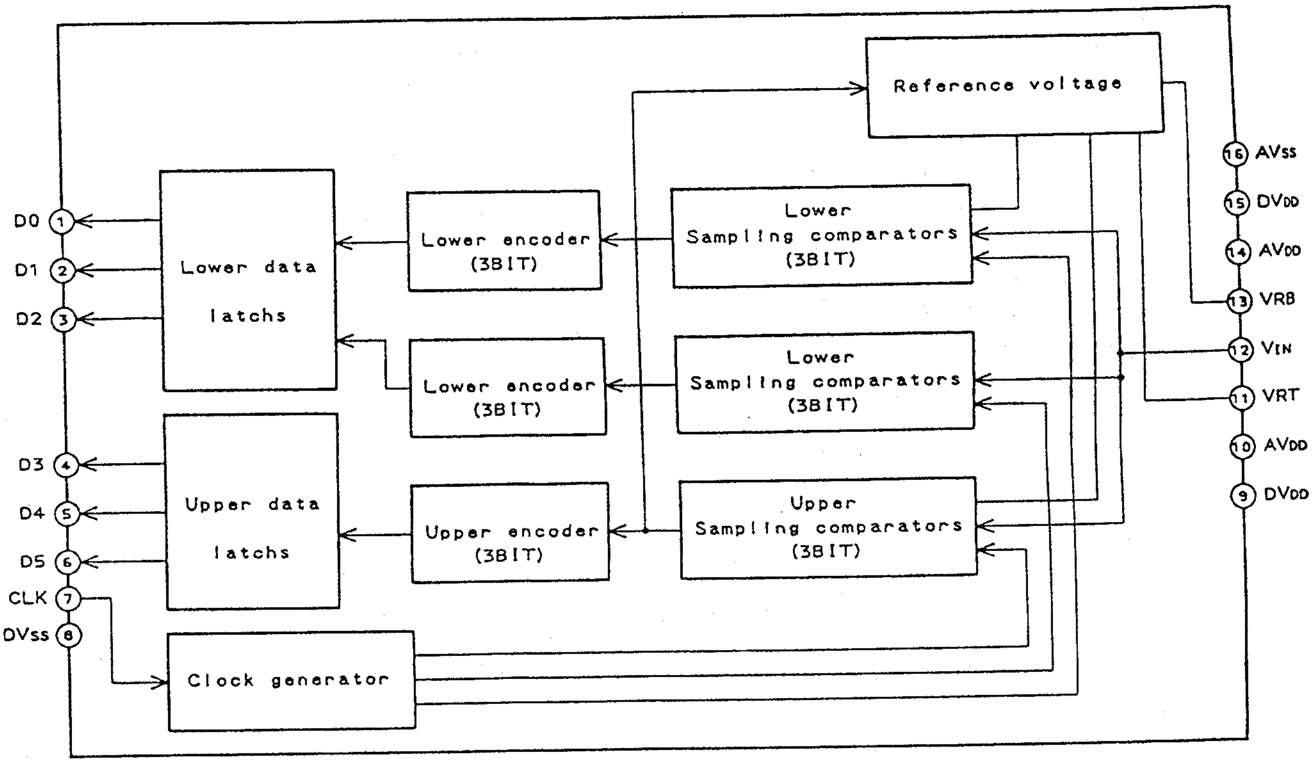
PORT NAME	PIN No.	FUNCTION
CKD10	30	Vertical effective position assignment value. (Initial value is E1 by internal pull up resistors)
CKD11	33	
CKD12	41	
CKD13	42	
CKD14	43	
CKD15	46	
CKD16	48	
CKD17	50	
CKD20	51	Vertical divided block size assignment value. (Initial value is F0 by pull up resistors)
CKD21	52	
CKD22	55	
CKD23	57	
CKD24	59	
CKD25	61	
CKD26	63	
CKD27	67	
CKD30	5	Horizontal effective position assignment value. (Initial value is FF by internal pull up resistors)
CKD31	6	
CKD32	7	
CKD33	8	
CKD34	9	
CKD35	10	
CKD36	11	
CKD37	12	
CKD40	13	Horizontal divided block size assignment value. (Initial value is FF by pull up resistors)
CKD41	14	
CKD42	16	
CKD43	17	
CKD44	18	
CKD45	19	
CKD46	20	
CKD47	21	
AF0	64	Data transfer ports to / from CAMERA control MI-COM. AF0 to AF7 : Bus (controled by AEN) AF8, AF9 : Output ports Outputs the focus data / recieves filter, focus mode and window data.
AF1	66	
AF2	68	
AF3	70	
AF4	72	
AF5	73	
AF6	74	
AF7	75	
AF8	44	
AF9	45	
ACK	58	MI-COM data transfer clock.
AEN	60	MI-COM data transfer enable.
ARQ	49	Data transfer request signal.
AD0	100	Video signal inputs from the A/D convertor (6 bits). These are inputs of the various digital filters and also bases of the focus data when generating the focus data.
AD1	99	
AD2	98	
AD3	96	
AD4	93	
AD5	91	
ATR	56	Focus motor drive pulse processing trigger.
CK1	23	Focus motor drive pulse output.
VD	38	V-sync input.
HD	39	H-sync input.

PORT NAME	PIN No.	FUNCTION
VR	35	IMS character data input.
RBLK	36	IMS character's edge data input.
WVR	34	IMS character (with frame) data output
MCK	37	Master clock.
MCKO	88	A/D convertor clock (controlled with CKMOD0,1 and MCK)
CKMD0	92	Selection of the clock's division factor. (Initial value is 4 by internal pull up.)
CKMD1	95	0: MCK, 1: 1/2 MCK, 3: 1/3 MCK, 4: 1/4 MCK.
SRST	47	System reset input.
DFC	97	To select the filter mode BPF or HPF. (H: BPF)
DTH	62	To select the digital through mode. H: through (filter pass) mode.
TJ	31	To select the test mode (H: test mode, L: normal mode).
TSM1	1	Test pins (Test monitor select).
TSM2	2	
TSM3	24	
TSM4	25	
TC1	69	Test pins (to select internal counter when counter test mode).
TC2	71	
TC3	76	
TC4	77	
TCS	89	To select counter test mode (Initial value is H: normal mode).
TCK	94	Test pin for TEST clock (Initial value is L).
TMONI1	80	CK1 mode select.
TMONI3	82	0: 390 pps, 1: 240 pps, 2:120 pps, 3: 60 pps.
TMONI5	84	To select the sequential sending mode (L: sequential mode, initial value is H)
TMONI7	86	ATR output to the motor driver when sequential mode.
TMONI2	81	Test pins (test monitor output).
TMONI4	83	
TMONI6	85	
TMONI8	87	
TIN3	22	Test pins (test data inputs, initial value is 0).
TIN4	26	
TIN5	27	
TIN6	32	

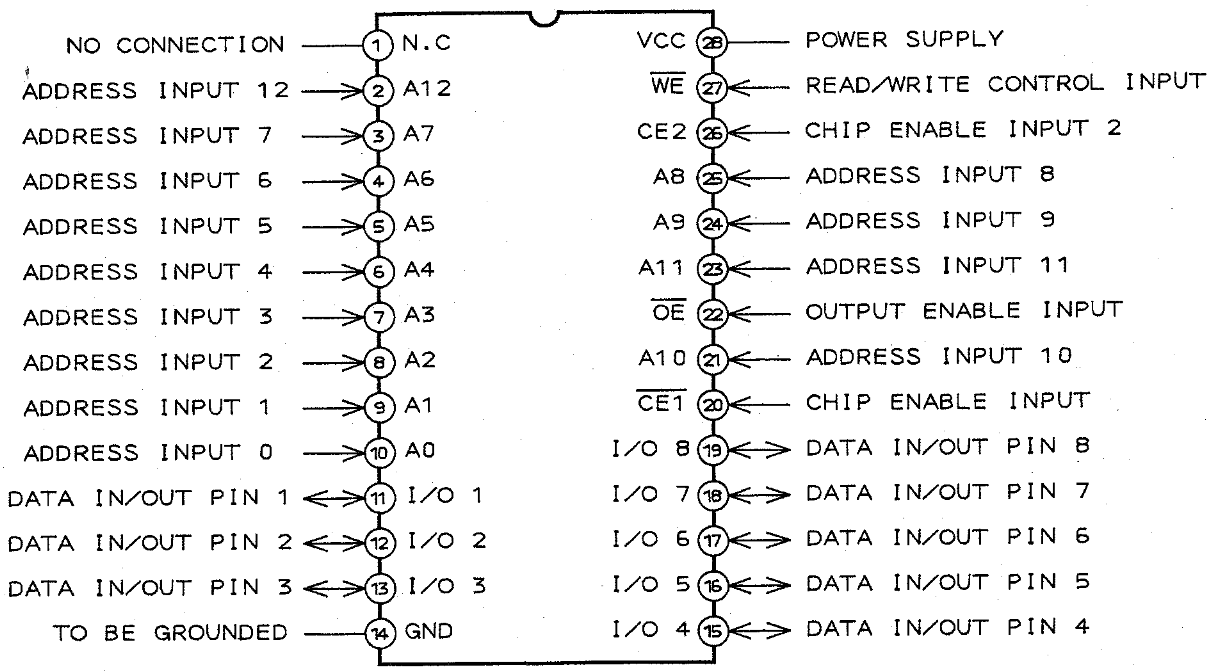
DAF02-FSY (AUTO CHASE FOCUS PROCESSOR)


MCK
VD
HD
CKMOD
MCKO
RBLK
VR
WVR
ATR
TMONI1
TMONI3
TMONI5
TMONI7
CKI
37
38
39
88
36
35
34
56
80
82
84
86
23
2
PULSE GENERATOR
CKD0
CKD1
CKD2
CKD3
8
TIMING GENERATOR
49 ARQ
60 AEN
58 ACK
WINDOW
CLKV
V FILTER
INTEGRATION
INTERFACE
AF
10
PHS
H FILTER 1 (HPF)
DFC
97 DFC
AFJ
AD
6
H FILTER 2 (BPF)
DTH 62
PEAK HOLD

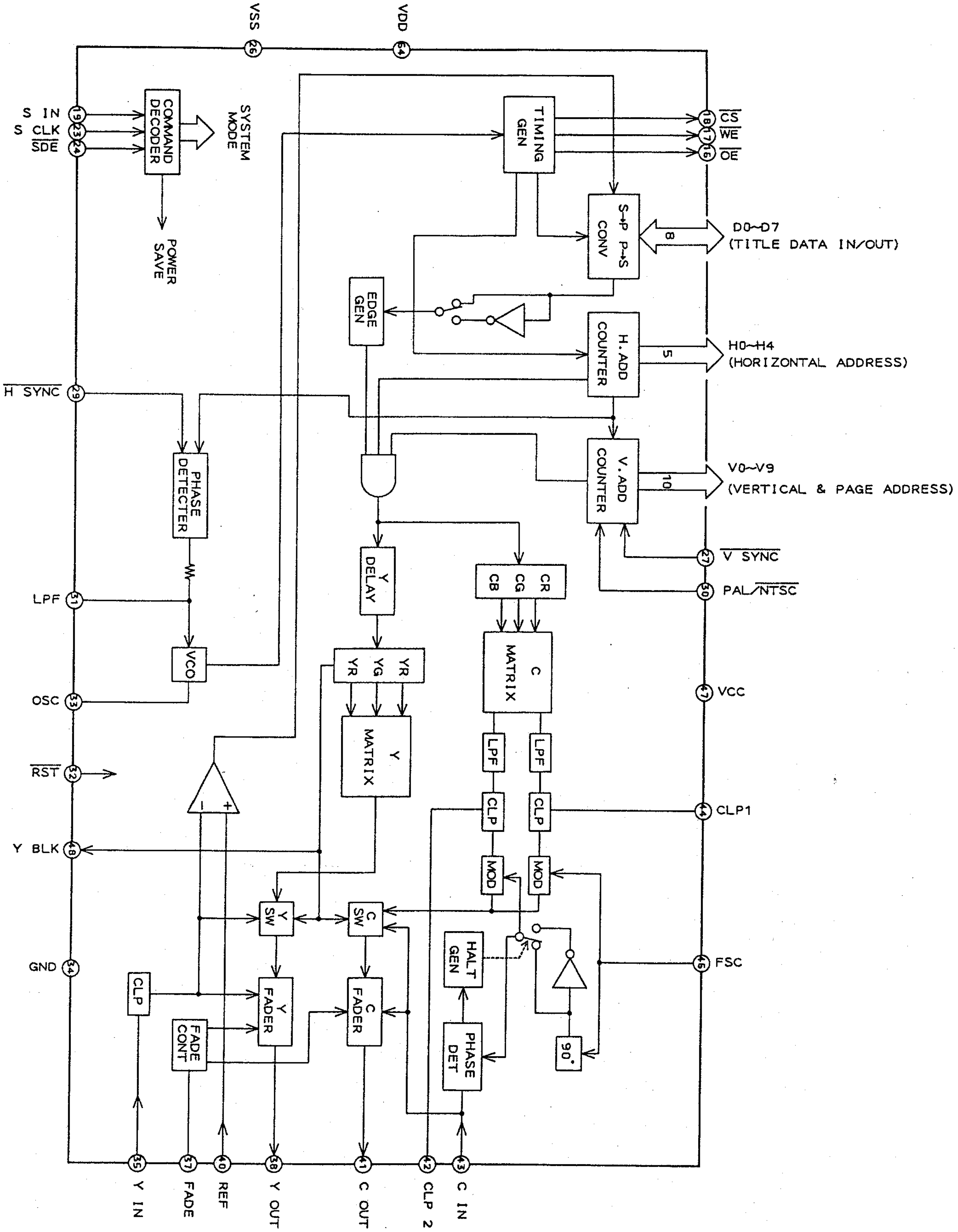
CXD1172AM (6 BIT A/D CONVERTOR)


Reference voltage
Lower data latchs
Lower encoder (3BIT)
Lower Sampling comparators (3BIT)
Lower encoder (3BIT)
Lower Sampling comparators (3BIT)
Upper data latchs
Upper encoder (3BIT)
Upper Sampling comparators (3BIT)
Clock generator
D0 1
D1 2
D2 3
D3 4
D4 5
D5 6
CLK 7
DVss 8
16 AVss
15 DVDD
14 AVDD
13 VRB
12 VIN
11 VRT
10 AVDD
9 DVDD

LC3664RML-10 (64k BIT STATIC RAM)


NO CONNECTION 1 N.C
ADDRESS INPUT 12 2 A12
ADDRESS INPUT 7 3 A7
ADDRESS INPUT 6 4 A6
ADDRESS INPUT 5 5 A5
ADDRESS INPUT 4 6 A4
ADDRESS INPUT 3 7 A3
ADDRESS INPUT 2 8 A2
ADDRESS INPUT 1 9 A1
ADDRESS INPUT 0 10 A0
DATA IN/OUT PIN 1 11 I/O 1
DATA IN/OUT PIN 2 12 I/O 2
DATA IN/OUT PIN 3 13 I/O 3
TO BE GROUNDED 14 GND
VCC 28 POWER SUPPLY
WE 27 READ/WRITE CONTROL INPUT
CE2 26 CHIP ENABLE INPUT 2
A8 25 ADDRESS INPUT 8
A9 24 ADDRESS INPUT 9
A11 23 ADDRESS INPUT 11
OE 22 OUTPUT ENABLE INPUT
A10 21 ADDRESS INPUT 10
CE1 20 CHIP ENABLE INPUT
I/O 8 19 DATA IN/OUT PIN 8
I/O 7 18 DATA IN/OUT PIN 7
I/O 6 17 DATA IN/OUT PIN 6
I/O 5 16 DATA IN/OUT PIN 5
I/O 4 15 DATA IN/OUT PIN 4

LV4101W (TITLER LSI FOR VIDEO CAMERA)


VSS
26
VDD
64
S IN
19
S CLK
23
$\overline{\text{SDE}}$
24
COMMAND DECODER
SYSTEM MODE
POWER SAVE
TIMING GEN
18
$\overline{\text{CS}}$
17
$\overline{\text{WE}}$
16
$\overline{\text{OE}}$
S→P P→S CONV
8
D0~D7
(TITLE DATA IN/OUT)
EDGE GEN
H. ADD COUNTER
5
H0~H4
(HORIZONTAL ADDRESS)
$\overline{\text{H SYNC}}$
29
PHASE DETECTER
V. ADD COUNTER
10
V0~V9
(VERTICAL & PAGE ADDRESS)
27
$\overline{\text{V SYNC}}$
50
PAL/$\overline{\text{NTSC}}$
Y DELAY
CB
CG
CR
C MATRIX
LPF
31
VCO
OSC
33
YR
YG
YR
Y MATRIX
47
VCC
LPF
LPF
$\overline{\text{RST}}$
32
−
+
CLP
CLP
44
CLP1
Y BLK
48
MOD
MOD
Y SW
C SW
HALT GEN
GND
34
CLP
Y FADER
C FADER
FADE CONT
PHASE DET
90°
45
FSC
35
Y IN
37
FADE
40
REF
38
Y OUT
41
C OUT
42
CLP 2
43
C IN

LV4101W (TITLER LSI FOR VIDEO CAMERA)

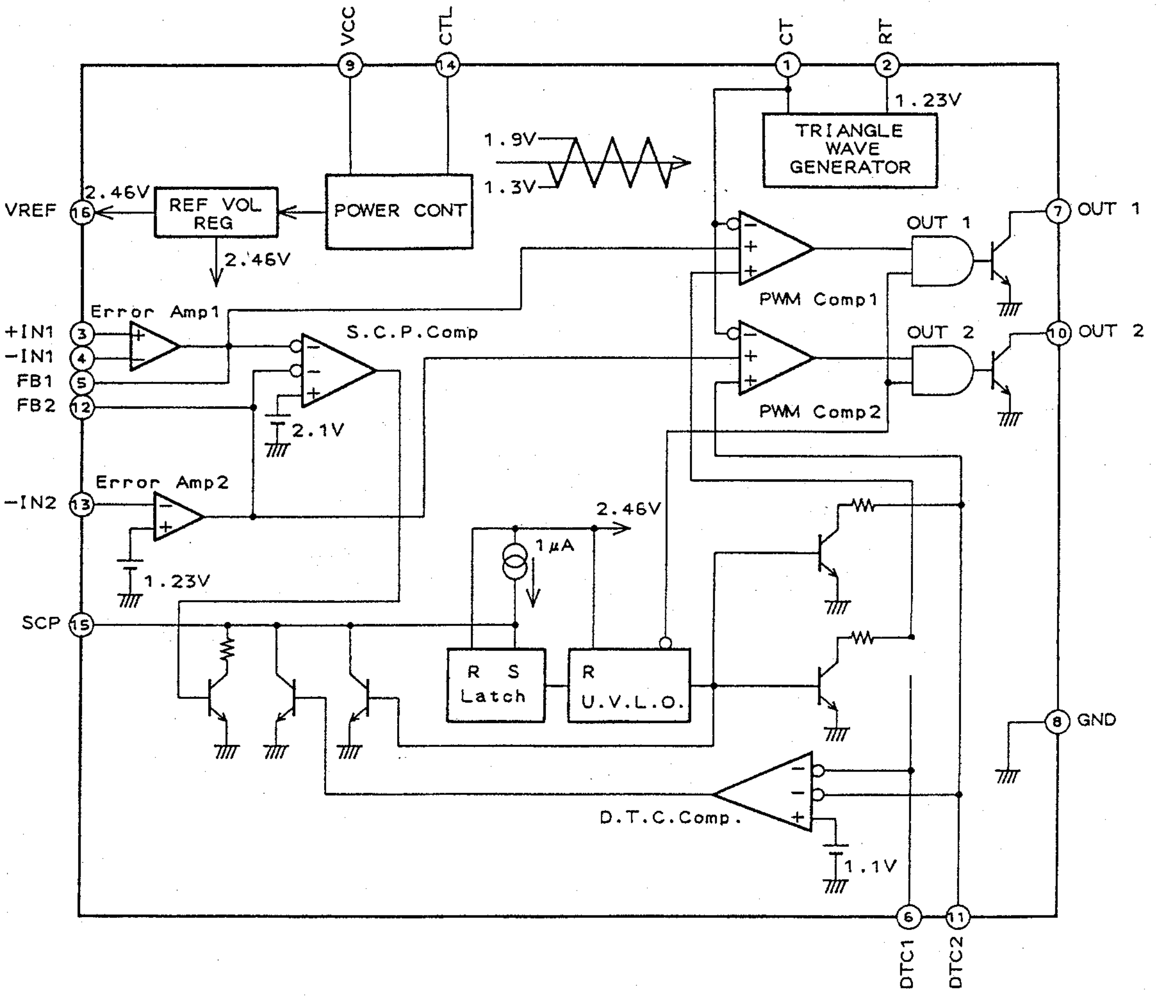
PORT NAME	PIN No.	FUNCTION
H4	63	Horizontal address output terminal
H3	1	
H2	2	
H1	3	
H0	4	
D7	5	Title data IN/OUT terminal
D6	7	
D5	8	
D4	10	
D3	12	
D2	13	
D1	14	
D0	15	
$\overline{OE}$	16	Output enable control output for a external memory
$\overline{WE}$	17	Write enable control output for a external memory
$\overline{CS}$	18	Chip select output for a external memory (Open drain out)
SIN	19	Serial data input terminal from MI-COM
SCLK	23	Serial clock input terminal from MI-COM
SDE	24	Enable input terminal for serial data input
Vss	26	Digital ground terminal
$\overline{\text{V SYNC}}$	27	Vertical sync input
$\overline{\text{H SYNC}}$	29	Horizontal sync input
PAL	30	PAL/$\overline{\text{NTSC}}$ system select terminal (H: PAL, L: NTSC)
LPF	31	Capacitor connecting terminal for APC filter
$\overline{RST}$	32	Chip reset input terminal (including pull-up resistor)
OSC	33	Crystal element connecting terminal for the clock
GND	34	Analogue ground terminal
Y IN	35	Luminance signal input terminal (100% white level : 500 mVp-p)
FADE	37	Capacitor connecting terminal for fading time control
Y OUT	38	Luminance signal (with title data) output terminal
REF	40	Reference voltage setting terminal for the comparator of the A/D converter
C OUT	41	Chroma signal (with title data) output terminal
CLP2	42	Capacitor connecting terminal for B-Y signal clamping
C IN	43	Chroma signal input terminal (burst level : 143 mV)
CLP1	44	Capacitor connecting terminal for R-Y signal clamping
Fsc	46	Sub-carrier input terminal (input level : 300 mVp-p)
Vcc	47	Analogue power supply terminal (5.0 V)
Y BLK	48	Title data output terminal for Y signal blanking
V9	49	Vertical and page address output terminal
V8	50	
V7	52	Vertical address output terminal
V6	53	
V5	55	
V4	56	
V3	57	
V2	59	
V1	61	
V0	62	
VDD	64	Digital power supply terminal (5.0 V)

M37451M8-224FP (CAMERA CONTROL MI-COM)

PORT NAME	PIN No.	FUNCTION
N.C	1	No connection.
WB -Y	2	White level detect input.
ARQ	3	Data transfer control signal input.
CK	4	Serial clock output to D/A.
SDI	5	Serial data out to D/A.
LD1	6	Chip select 1.
LD2	7	Chip select 2.
SCL	8	Serial clock out to EEP-ROM.
SDA	9	Serial data in/out from/to EEP-ROM.
SDE	10	Data transfer control signal out to titler.
SIN	11	Serial data out to titler.
HALL SW	12	Hall amp gain control output.
SCLK	13	Serial clock out to titler.
FMSPD2	14	Focus motor speed control out 2
FMSPD1	15	Focus motor speed control out 1
EE5	16	EE/PB judge input.
HD	17	H sync signal input.
VTG	18	V sync signal input.
SLEEP	19	Operation control in/out (power on/off)
CNVss	25	Chip mode select input (D-GND)
RESET/AC	26	Reset input.
X IN	28	X'tal connecting terminal.
X OUT	29	X'tal connecting terminal.
Vss	32	To be connected D-GND.
ZOOM T	33	Zoom motor control out (TELE)
ZOOM W	34	Zoom motor control out (WIDE)
SENSE	35	Focus reference position detect input.
HI-RESO	36	Auto focus mode control input.
LED-IHQ	37	I-HQ LED ON/OFF control out.
TARRY	38	Tarry LED ON/OFF control out.
AF9	39	Auto focus transferred data in/out
AF8	40	
AF7	42	
AF6	43	
AF5	44	
AF4	45	
AF3	46	
AF2	47	
AF1	48	
AF0	49	
DTH	50	Auto focus IC mode select out.
AEN	51	Data transfer direction control out to auto focus IC.
ACK	52	Serial clock out to auto focus IC.
TITLER	53	Digital memory available model select input.
EMZ1	54	PV-M2 or M4/MS8 model select input.
FCS RST	55	Focus motor driver reset output.
CW/CCW	56	Focus moving direction select output.
ATR	57	Focus motor drive pulse trigger output.
T/W2	58	Zoom encoder (detail) input.
T/W1	59	Zoom encoder (rough) input.
WB -V	62	Colour temperature range voltage detect input.
WB - CT	63	Colour temperature voltage detect input.
IRIS LEV	64	Iris open condition detect input.
KENPA	65	CCD output voltage detect input.
IRIS-CONT 2	66	Iris control voltage output (detail).
IRIS-CONT 1	67	Iris control voltage output (rough).

PORT NAME	PIN No.	FUNCTION
DA Vref	68	D/A convertor reference voltage terminal.
AD Vref	69	A/D convertor reference voltage terminal.
A Vss	70	Analogue power supply ground.
A Vcc	71	Analogue power supply terminal.
Vcc	72	Power supply terminal.
Vss	73	Ground terminal.
CMR-BUSY	74	Transfer BUSY output to OPE. MI-COM.
CMR-CLK	75	Serial clock input from OPE. MI-COM.
CMR-DATA	76	Serial data out to OPE. MI-COM.
OPE-DATA	77	Serial data in from OPE. MI-COM.
FADE SW	78	Black/white fader select output.
SHUT	79	Shutter speed select pulse output.

MB3778PFV (SWITCHING REGULATOR CONTROLLER)

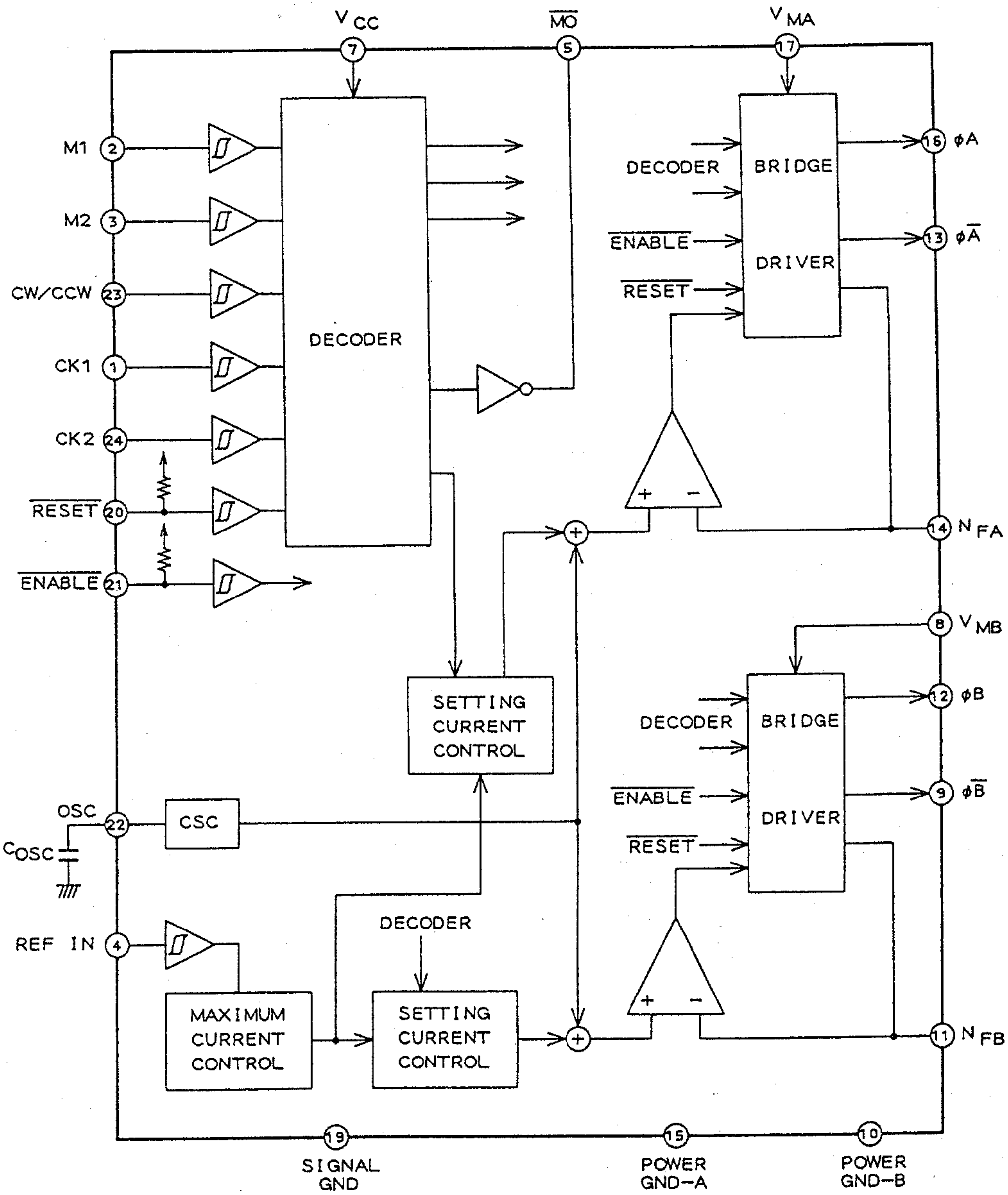


VCC
CTL
CT
RT
9
14
1
2
1.23V
TRIANGLE WAVE GENERATOR
1.9V
1.3V
VREF
16
2.46V
REF VOL REG
POWER CONT
2.46V
OUT 1
7
OUT 1
PWM Comp1
OUT 2
10
OUT 2
PWM Comp2
Error Amp1
+IN1
3
-IN1
4
FB1
5
FB2
12
S.C.P.Comp
2.1V
Error Amp2
-IN2
13
1.23V
2.46V
1µA
SCP
15
R S Latch
R U.V.L.O.
8
GND
D.T.C.Comp.
1.1V
6
11
DTC1
DTC2

M37471M8-225 (OPERATION MI-COM)

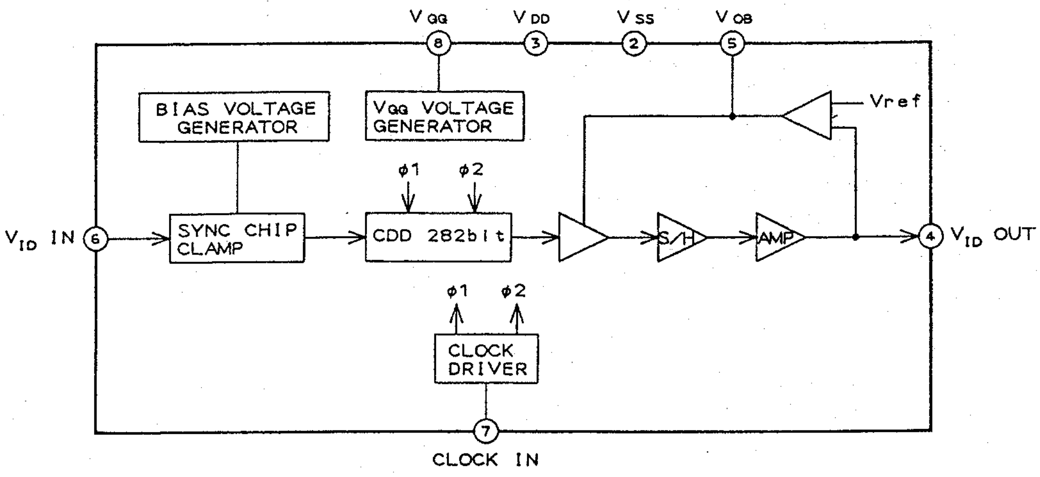
PORT NAME	PIN No.	FUNCTION
CLKTST	3	X'tal OSC out for timer.
CMR-CLK	4	Serial clock out to camera MI-COM.
CMR-BUSY	5	BUSY input from camera MI-COM.
Li-DET	7	Back up (Lithium) battery voltage input (A/D).
SCAN7	6	Key scan outputs.
SCAN6	8	
SCAN5	9	
SCAN4	10	
SCAN3	11	
SCAN2	12	
SCAN1	13	
SCAN0	14	
Vref	15	A/D convertor reference voltage terminal.
Xin	18	X'tal connecting terminal (main clock).
Xout	19	X'tal connecting terminal (main clock).
AVss	21	Analogue power supply ground terminal.
Vss	22	Ground terminal.
Vcc	23	Power supply terminal.
Xc in	25	X'tal connecting terminal (timer clock).
Xc out	26	X'tal connecting terminal (timer clock).
$\overline{\text{RESET}}$	28	Reset input.
IR	30	Remote control signal input.
$\overline{\text{PDOWN}}$	32	Power supply voltage drop detect input.
CMR-DATA	33	Serial data input from camera MI-COM.
$\overline{\text{RESET/AC}}$	35	Reset pulse output to external ICs.
AL	36	Power supply (always) control output.
SYS-CLK	37	Serial clock output to SYS-CON MI-COM.
FADER	38	Fader key input.
KEY0	39	Key scan inputs.
KEY1	40	
KEY2	41	
KEY3	42	
KEY4	43	
KEY5	46	
SLEEP	47	SLEEP output to external ICs.
WAKE-UP	48	WAKE UP output to SYS-CON MI-COM.
SYS-BUSY	49	BUSY input from SYS-CON MI-COM.
Vss	51	Ground terminal.
SYS-DATA	52	Serial data input from SYS-CON MI-COM.
STB	53	On screen display strobe output.
CLK	54	On screen display clock output.
OP-DATA	55	Serial data output to CAMERA, SYS-CON and OSD ICs.

TB6504F-EL (STEPPING MOTOR CONTROL DRIVER)



VCC 7
MO 5
VMA 17
M1 2
M2 3
CW/CCW 23
CK1 1
CK2 24
RESET 20
ENABLE 21
DECODER
DECODER
BRIDGE
DRIVER
ENABLE
RESET
16 φA
13 φĀ
14 NFA
8 VMB
DECODER
BRIDGE
DRIVER
ENABLE
RESET
12 φB
9 φB̄
11 NFB
SETTING CURRENT CONTROL
OSC 22
COSC
CSC
REF IN 4
DECODER
MAXIMUM CURRENT CONTROL
SETTING CURRENT CONTROL
19 SIGNAL GND
15 POWER GND–A
10 POWER GND–B

TL8811F (PAL CCD 1H DELAY LINE)



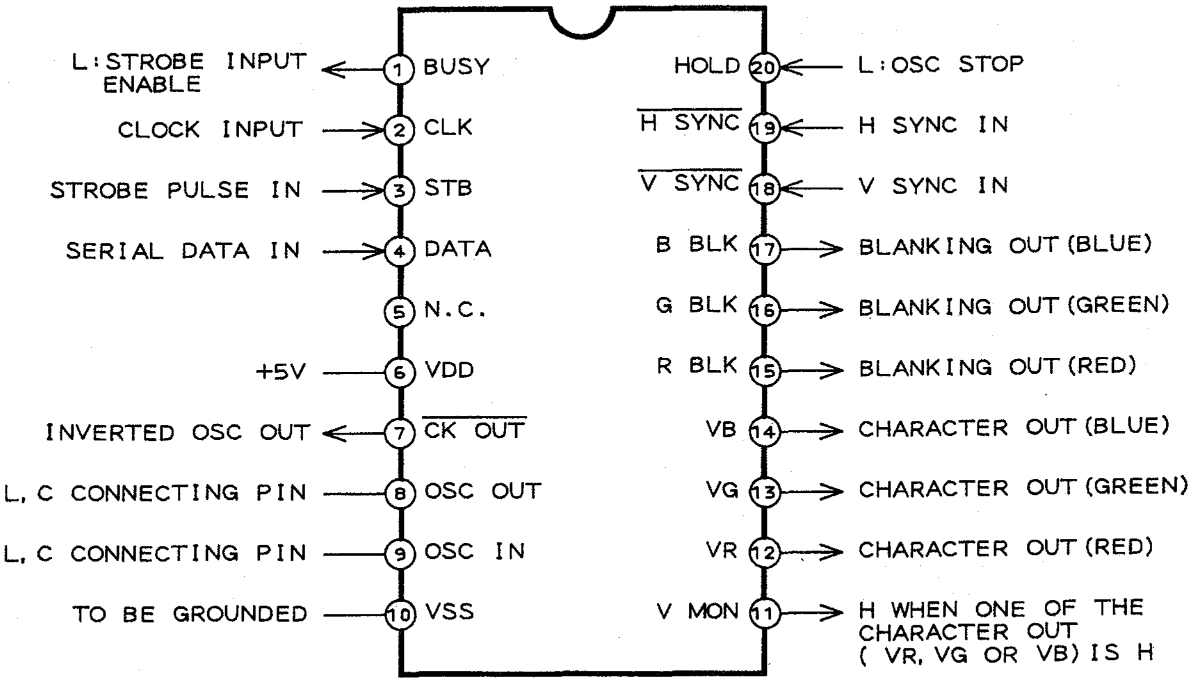
VGG 8
VDD 3
VSS 2
VOB 5
BIAS VOLTAGE GENERATOR
VGG VOLTAGE GENERATOR
Vref
φ1
φ2
VID IN 6
SYNC CHIP CLAMP
CDD 282bit
S/H
AMP
4 VID OUT
φ1
φ2
CLOCK DRIVER
7 CLOCK IN

µPD78136GF (SERVO/SYSCON MI-COM)

PORT NAME	PIN No.	FUNCTION
DPG	1	DRUM PG pulse input.
SI	2	Serial data input from OPE. MI-COM.
SO	3	Serial data output to OPE. MI-COM.
SCK	4	Serial clock input from OPE. MI-COM.
WAKE UP	5	Start up command input.
ATF PLS	6	ATF pulse input.
SLW PLS	7	Slow pulse input.
REC. SAF	8	Tape REC enable detect.
CFG	9	CAPSTAN motor FG pulse input.
DFG	10	DRUM motor FG pulse input.
ENV. PLS	11	RF envelope detect pulse input.
C. SYNC	12	Composite sync input.
SWP	13	Switching pulse output.
SLEEP	14	Stand-by signal input.
VP	15	Quasi V sync output.
ME	16	I-HQ control output.
DPWM	17	DRUM motor servo error output.
CPWM	18	CAPSTAN motor servo error output.
AVss	19	Analogue GND.
AVref	20	Reference voltage.
ATF	21	ATF (Automatic tracking finding) signal input.
ENV. DET	22	VIDEO RF envelope input.
SS	23	Start sensor input.
ES	24	End sensor input.
SRP	25	Supply reel pulse input.
TRP	26	Take up reel pulse input.
BAT	27	Battery voltage detect input.
DEW	28	Dew sensor input.
$\overline{\text{RESET}}$	29	Reset input from OPE. MI-COM.
Vdd	30	+ 5 V.
X2	31	Clock 2.
X1	32	Clock 1.
Vss	33	GND.
TP	34	TEST pin.
TSA	35	ATF lock window output.
JOGPLS	36	Jogging control output.
EDIT	37	Tape Dubbing control output.
SEL1	38	ATF reference select output 1
SEL2	39	ATF reference select output 2.
REC MUTE	40	Audio REC mute control.
$\overline{\text{FE}}$	41	Flying erase ON/OFF control.
MODE B	42	Audio mode detect input B.
MODE A	43	Audio mode detect input A.
$\overline{\text{MONO}}$	44	Audio monaural detect input.
MATRIX	45	Matrix ON/OFF control output.
MODE2	46	Audio out control output (H: L-ch, L: R-ch).
MODE1	47	Audio out control output (H: R-ch, L: L-ch).
FADE	48	Fade control output.
A.MUTE	49	Audio mute control output.
$\overline{\text{REC.S}}$	50	REC power supply control output.
Hi8	51	Hi8 type recording control output.
SCL	52	EEP-ROM serial clock output.
SDA	53	EEP-ROM serial data output.
TUNE	54	I-HQ control output.
VCS	55	Video IC chip select output.
VSO	56	Serial data output for Video IC function control.

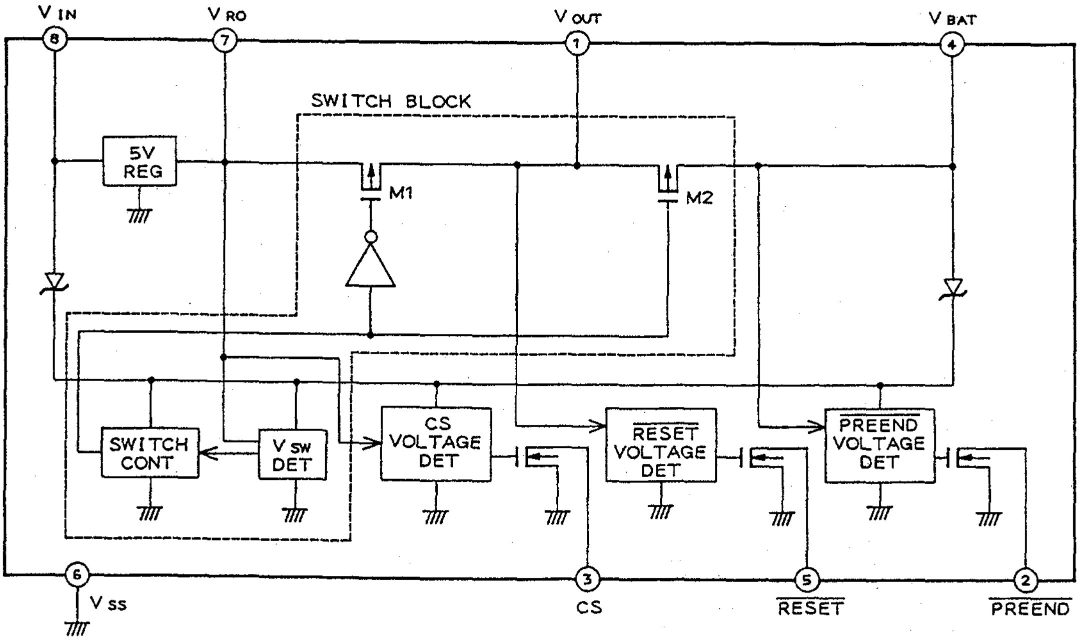
PORT NAME	PIN No.	FUNCTION
VCK	57	Serial clock output to video IC.
VS2	58	System set output 2 (PV-M2/M4/MS8).
VS1	59	System set output 1 (PV-M2/M4/MS8).
MP/ME	60	Tape detect output.
NORM/Hi8	61	Tape type output.
CSW	62	Cassette switch input (ejected or not).
RSW3	63	Rotary switch (mecha. position) 3 input.
RSW2	64	Rotary switch (mecha. position) 2 input.
RSW1	65	Rotary switch (mecha. position) 1 input.
RUN	66	Not used.
Vss	67	To be grounded.
EA	68	To be pulled up.
LM.F	69	Loading motor direction control output (forward).
LM.R	70	Loading motor direction control output (reverse).
PB	71	PB control output.
TRICK	72	System control output when TRICK mode.
SP	73	Tape speed detect output.
F/R	74	CAPSTAN motor direction control output.
CM STOP	75	CAPSTAN motor stop output.
DM STOP	76	DRUM motor stop output.
Vdd	77	Supply + 5V.
STILL	78	Still mode output.
SRDY	79	Serial data transfer ready output.
Vref	80	Reference voltage output.

μPD6451 AGT-819 (CHARACTER GENERATOR)



L:STROBE INPUT ENABLE
① BUSY
CLOCK INPUT
② CLK
STROBE PULSE IN
③ STB
SERIAL DATA IN
④ DATA
⑤ N.C.
+5V
⑥ VDD
INVERTED OSC OUT
⑦ CK OUT
L, C CONNECTING PIN
⑧ OSC OUT
L, C CONNECTING PIN
⑨ OSC IN
TO BE GROUNDED
⑩ VSS
HOLD ⑳
L:OSC STOP
H SYNC ⑲
H SYNC IN
V SYNC ⑱
V SYNC IN
B BLK ⑰
BLANKING OUT (BLUE)
G BLK ⑯
BLANKING OUT (GREEN)
R BLK ⑮
BLANKING OUT (RED)
VB ⑭
CHARACTER OUT (BLUE)
VG ⑬
CHARACTER OUT (GREEN)
VR ⑫
CHARACTER OUT (RED)
V MON ⑪
H WHEN ONE OF THE CHARACTER OUT (VR, VG OR VB) IS H

S-8420BF-T1 (BATTERY BACK-UP SELECT)


V IN
V RO
V OUT
V BAT
8
7
1
4
SWITCH BLOCK
5V REG
M1
M2
SWITCH CONT
V SW DET
CS VOLTAGE DET
RESET VOLTAGE DET
PREEND VOLTAGE DET
6
V SS
3
CS
5
RESET
2
PREEND

ABBREVIATIONS (VIDEO)

ABBREVIATION	EXPLANATION
A	Audio or Analogue
AC	Alternating Current
ACC	Automatic Color Control
A/C	Audio and Control
ADJ	ADJust (ment)
AFC	Automatic Frequency Control
AFT	Automatic Fine Tuning
AGC	Automatic Gain Control
AH	Audio Head
AL	ALways (voltage)
ALC	Automatic Level Control
A-SW.P	Audio SWitching Pulse
A-MUTE	Audio MUTE
ANT	ANTenna
APC	Automatic Phase Control
ASSY	ASSemblY
BAL	BALance
B DOWN	Break DOWN
BGP	Burst Gate Pulse
BLK	BLocK or BLacK
BPF	Band Pass Filter
BU	Back Up (voltage)
B/W	Black and White
C	Chroma or Color
CCD	Charge Coupled Device
CCIR	Comité Consultatif International des Radio communications
CH (ch)	CHannel (channel)
CLK	CLocK
CM	Capstan Motor
CN	CoNnector
COMP	COMParator
CSW	Cassette SWitch
CSYNC	Composite SYNC
CTL	ConTrol
CUE	CUE
DAC	Digital to Analog Converter
DC	Direct Current
DEMOD	DEMODulator
DET	DETetct (DETector)
DL	Delay Line
DM	Drum Motor
DOC	Drop Out Compensator
D.P.E	Drum Phase Error
D.PG	Drum Pulse Generator
EE	Electronic to Electronic
EF	Emitter Follower
EMPHA	EMPHAsis
ENV	ENVelope
EP	Extended Play
EP ROM	Erasable Programmable ROM
EQ	EQualizer
FE	Full track Erase
FF	Flip-Flop or Fast Foward
FG	Frequency Generator
Fig	Figure
FLD	FLuorescent Display
FM	Frequency Modulation
Fo	resonance Frequency
FREQ	FREQuency
GND	GrouND
H	Horizontal
HP	Horizontal (sync) pulse
HPF	High Pass Filter
HQ	High Quality System
IC	Integrated Circuit
ID	IDentification
IDL	IDLe (Voltage)
IMS	Interactive Monitor System
INS	INSert
INV	INVerter
L	Left
LED	Light Emitting Diode
LIM	LIMitter
LM	Loading Motor
LM STP	Loading Motor STop
LP	Long Play
LPF	Low Pass Filter
ME-SECAM	Middle East SECAM
MI-COM	MIcro COMputer
MM	Mono-stayble Multi
MOD	MODulator
MRS	Motor ReverSe
NG	Noise Gate
NICAM	Near Instanteneous Compand Audio Multiplex
NON-LIN	NON-LINear
N.T.S.C.	National Television System Committee
OSC	OSCillator
PAL	Phase Alternation by Line
PB	Play Back
PCB (P.C.B)	Printed Circuit Board
P-COM	Phase-COMparator
P DOWN	Power DOWN
PG	Pulse Generator
P.I.P	Picture In Picture
PL, PLG	PLunger (PLunGer)
PRG (PGM)	PRoGram (ProGraM)
PU	Pick UP (head, pulse)
PWR	PoWeR
Q	Quality factor
R	Right
RAM	Random Access Memory
REC	RECord
REF	REFerence
REF-V	REFerence Vertical signal
REG	REGulator
REV (REVW)	REView (REVieW)
REW	REWind
RF	Radio Frequency
ROM	Read Only Memory
R.S SW	Record-Safety SWitch
RST (RES)	ReSet (RESet)
RVS	ReVerSe
S	Sensor, Shield
SAW	Surface Acoustic Wave
SC	SimulCast
S CLK	Serial CLocK
SECAM	SÉquentiel Couleur À Mémoire
S & H	Sample and Hold
SLP	Super Long Play
SP	Standard Play
SPD	SPeeD
SRP	Supply Reel Pulse
SRV	SeRVo
SOW	Sync On Word
STBY	STandBY
S.VHS	Super VHS
SW	SWitch
SW'NG	SWitchiNG
SWP	SWitching Pulse
SYNC	SYNChronize
T-AUDIO	Tuner AUDIO
TPZ (TRAPE)	TraPeZoid (TRAPEzoid)
TRK	TRacKing
TRP	Take up Reel Pulse
T/U	Take Up
TV	TeleVision
UHF	Ultra High Frequency
UNR	UNRegulated (voltage)
V	Vertical or Video
VASS	Video Address Search System
VCO	Voltage Controlled Oscillator
VH	Video Head
VHF	Very High Frequency
VHS	Video Home System
VIF	Video Intermediate Frequency
VISS	Video Index Search System
VJ	Video Judge
VM	Voltage for Memory
VOB	Video On Blank
VOW	Video On Word
VP	Vertical (sync) Pulse
VPS	Video Program System
VPT	Video Programming by video Text
VT	Voltage for Tuning
WHT	WHiTe
Y	Luminance
2H	2 Hour (SP)
4H	4 Hour (LP)
6H	6 Hour (SLP/EP)